	Typ	L #	Hits	Search Text	DBs	Time Stamp	Comments	ErrDefinition	Errrs
1	BRS	L1	4115	705/1,5,6,7,8,9,10,11,12,13,14,15,26,27,28,30.ccls.	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 18:52			0
2	BRS	L2	10440	705/$7.ccls.	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:02			0
3	BRS	L3	1986	379/904,210.01,202.01,201.12,201.01,102.01,100.ccls.	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:03			0
4	BRS	L4	71716	379/$7.ccls.	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:03			0
5	BRS	L5	6096	1 or 3	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:03			0
6	BRS	L6	81845	2 or 4	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:06			0
7	BRS	L7	69	(send$3 near5 message$1) with (contacts or list or directory) with (notif$4 or notification)	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:10			0
8	BRS	L8	63	(automatic$4 near5 dial$3) same profile$1	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:10			0
9	BRS	L9	0	7 and 8	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:10			0
10	BRS	L10	45875	(send$3 near5 message$1)	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:10			0
11	BRS	L11	33	8 and 10	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:10			0
12	BRS	L12	796846	(contacts or list or directory)	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:10			0
13	BRS	L14	1710	schedul$3 with (trip or travel$4 or vacation or cruise)	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:12			0
14	BRS	L15	1	13 and 14	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:12			0
15	BRS	L13	26	11 and 12	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:20			0
16	BRS	L16	1252	(automatic$4 with contact$3) same (class or group$3 or profile$1)	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:39			0
17	BRS	L17	7	11 not 13	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:23			0
18	BRS	L18	30	8 not 11	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:23			0
19	BRS	L19	1	16 and 18	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:26			0

	Type	L #	Hits	Search Text	DBs	Time Stamp	Comments	Error Definition	Errors
20	BRS	L20	13	16 and 5	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:39			0
21	BRS	L21	47	11 or 19 or 20	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:39			0
22	BRS	L22	268	automatic$4 with contact$3 with profile$3	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:40			0
23	BRS	L23	43	message with content with profile	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:40			0
24	BRS	L24	0	22 and 23	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:40			0
25	BRS	L25	0	message with content with profile with depend	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:40			0
26	BRS	L26	0	message with content with profile with depend$3	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:41			0
27	BRS	L27	88	content with profile with depend$3	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:41			0
28	BRS	L28	1	23 and 27	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:43			0
29	BRS	L29	5	5 and 27	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:43			0
30	BRS	L30	4	29 not 21 not 28	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:54			0
31	BRS	L31	45	("4674041" | "4703423" | "4789235" | "4850007" | "5099422" | "5105184" | "5220501" | "5239648" | "5283731" | "5291594" | "5297249" | "5305195" | "5347632" | "5355161" | "5361393" | "5377354" | "5442771" | "5446919" | "5491838" | "5499046" | "5515270" | "5566353" | "5584025" | "5594910" | "5636346" | "5664948" | "5692132" | "5717923" | "5724521" | "5740549" | "5745882" | "5745938" | "5754938" | "5754939" | "5761601" | "5768521" | "5796945" | "5812647" | "5848397" | "5870724" | "5873068" | "5941953" | "5956716" | "6026368" |	USPAT	2003/07/29 19:54			0
32	BRS	L32	12	(variable near5 content) with profile$1	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:58			0
33	BRS	L33	0	31 and 32	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:55			0
34	BRS	L34	0	32 and 3	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:55			0
35	BRS	L35	1	32 and 6	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:56			0
36	BRS	L36	0	14 and 32	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:56			0

	Typ	L #	Hits	Search T xt	DBs	Tim Stamp	Comments	Error Definition	Errrs
37	BRS	L37	0	32 and 7	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:56			0
38	BRS	L38	0	32 and 8	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:56			0
39	BRS	L39	0	16 and 32	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:56			0
40	BRS	L40	4	12 and 32	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:56			0
41	BRS	L41	8	32 not 40	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:58			0
42	BRS	L42	0	14 and 31	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:58			0
43	BRS	L43	1	30 and 31	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:59			0
44	BRS	L44	0	30 and 14	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:59			0
45	BRS	L45	1	8 and 14	USPAT; EPO; JPO; DERWENT; IBM_TDB	2003/07/29 19:59			0
46	BRS	L46	44	5099422.URPN.	USPAT	2003/07/29 20:12			0
47	BRS	L47	1	("5737726" "6327574" "5848397").pn. and email	USPAT	2003/07/29 20:13			0
48	BRS	L48	2	("5737726" "6327574" "5848397").pn. and mail	USPAT	2003/07/29 20:15			0
49	BRS	L49	2	725/32,34,35.ccls.	EPO	2003/07/29 20:19			0
50	BRS	L50	451	secretarial	USPAT; EPO; DERWENT	2003/07/29 20:17			0
51	BRS	L51	2	16 and 50	USPAT; EPO; DERWENT	2003/07/29 20:19			0
52	BRS	L52	0	16 and 23	USPAT; EPO; DERWENT	2003/07/29 20:19			0
53	BRS	L53	0	16 and 46	USPAT; EPO; DERWENT	2003/07/29 20:19			0
54	BRS	L54	0	16 and 32	USPAT; EPO; DERWENT	2003/07/29 20:19			0
55	BRS	L55	183	725/32,34,35.ccls.	USPAT; EPO	2003/07/29 20:19			0

	Type	L #	Hits	Search Text	DBs	Time Stamp	Comments	Error Definition	Errors
56	BRS	L56	0	50 and 55	USPAT; EPO	2003/07/29 20:20			0
57	BRS	L57	0	(7 or 8) and 50	USPAT; EPO	2003/07/29 20:20			0
58	BRS	L59	0	27 and 50	USPAT	2003/07/29 20:20			0
59	BRS	L62	635	(automation with home)	USPAT	2003/07/29 20:40			0
60	BRS	L63	0	62 and 55	USPAT	2003/07/29 20:38			0
61	BRS	L64	0	32 and 63	USPAT	2003/07/29 20:38			0
62	BRS	L65	3	(7 or 8 or 16 or 22 or 27 or 46) and 62	USPAT	2003/07/29 20:41			0
63	BRS	L66	236	automation with home with system	USPAT	2003/07/29 20:40			0
64	BRS	L67	236	66 and 62	USPAT	2003/07/29 20:41			0
65	BRS	L68	1065	(7 or 8 or 16 or 22 or 27 or 46)	USPAT	2003/07/29 20:41			0
66	BRS	L69	1	66 and 68	USPAT	2003/07/29 20:41			0

Welcome to DialogClassic Web(tm)
*** DIALOG HOMEBASE(SM) Main Menu ***

Information:
  1. Announcements (new files, reloads, etc.)
  2. Database, Rates, & Command Descriptions
  3. Help in Choosing Databases for Your Topic
  4. Customer Services (telephone assistance, training, seminars, etc.)
  5. Product Descriptions

Connections:
  6. DIALOG(R) Document Delivery
  7. Data Star(R)

   /H = Help   /L = Logoff   /NOMENU = Command Mode

Enter an option number to view information or to connect to an online
 service. Enter a BEGIN command plus a file number to search a database
(e.g., B1 for ERIC).
?

B IGOR705
>>>   77 does not exist
>>>1 of the specified files is not available
        29jul03 20:02:56 User268082 Session D33.1
             $0.00   0.133 DialUnits FileHomeBase
      $0.00 Estimated cost FileHomeBase
      $0.03 INTERNET
      $0.03 Estimated cost this search
      $0.03 Estimated total session cost   0.133 DialUnits

SYSTEM:OS - DIALOG OneSearch
   File   2:INSPEC 1969-2003/Jul W3
            (c) 2003 Institution of Electrical Engineers
*File   2: Alert feature enhanced for multiple files, duplicates
removal, customized scheduling. See HELP ALERT.
   File   9:Business & Industry(R)   Jul/1994-2003/Jul 29
            (c) 2003 Resp. DB Svcs.
   File   15:ABI/Inform(R) 1971-2003/Jul 26
            (c) 2003 ProQuest Info&Learning
*File   15: Alert feature enhanced for multiple files, duplicate
removal, customized scheduling. See HELP ALERT.
   File   16:Gale Group PROMT(R)   1990-2003/Jul 29
            (c) 2003 The Gale Group
*File   16: Alert feature enhanced for multiple files, duplicate
removal, customized scheduling. See HELP ALERT.
   File   20:Dialog Global Reporter 1997-2003/Jul 29
            (c) 2003 The Dialog Corp.
   File   35:Dissertation Abs Online 1861-2003/Jun
            (c) 2003 ProQuest Info&Learning
   File   65:Inside Conferences 1993-2003/Jul W4
            (c) 2003 BLDSC all rts. reserv.
   File   99:Wilson Appl. Sci & Tech Abs 1983-2003/Jun
            (c) 2003 The HW Wilson Co.
   File 148:Gale Group Trade & Industry DB 1976-2003/Jul 29
            (c)2003 The Gale Group
*File 148: Alert feature enhanced for multiple files, duplicate

removal, customizea scheduling. See HELP ALERT.
```
  File 160:Gale Group PROMT(R)   1972-1989
        (c) 1999 The Gale Group
  File 233:Internet & Personal Comp. Abs.  1981-2003/Jun
        (c) 2003 Info. Today Inc.
  File 256:SoftBase:Reviews,Companies&Prods.  82-2003/Jun
        (c)2003 Info.Sources Inc
  File 275:Gale Group Computer DB(TM)  1983-2003/Jul 29
        (c) 2003 The Gale Group
  File 347:JAPIO  Oct 1976-2003/Mar(Updated 030703)
        (c) 2003 JPO & JAPIO
```
*File 347: JAPIO data problems with year 2000 records are now fixed.
Alerts have been run. See HELP NEWS 347 for details.
```
  File 348:EUROPEAN PATENTS  1978-2003/Jul W03
        (c) 2003 European Patent Office
  File 349:PCT FULLTEXT  1979-2002/UB=20030724,UT=20030717
        (c) 2003 WIPO/Univentio
  File 474:New York Times Abs  1969-2003/Jul 28
        (c) 2003 The New York Times
  File 475:Wall Street Journal Abs  1973-2003/Jul 28
        (c) 2003 The New York Times
  File 476:Financial Times Fulltext  1982-2003/Jul 29
        (c) 2003 Financial Times Ltd
  File 583:Gale Group Globalbase(TM)  1986-2002/Dec 13
        (c) 2002 The Gale Group
```
*File 583: This file is no longer updating as of 12-13-2002.
```
  File 610:Business Wire  1999-2003/Jul 29
        (c) 2003 Business Wire.
```
*File 610: File 610 now contains data from 3/99 forward.
Archive data (1986-2/99) is available in File 810.
```
  File 613:PR Newswire  1999-2003/Jul 29
        (c) 2003 PR Newswire Association Inc
```
*File 613: File 613 now contains data from 5/99 forward.
Archive data (1987-4/99) is available in File 813.
```
  File 621:Gale Group New Prod.Annou.(R)  1985-2003/Jul 29
        (c) 2003 The Gale Group
  File 624:McGraw-Hill Publications  1985-2003/Jul 29
        (c) 2003 McGraw-Hill Co. Inc
```
*File 624: Homeland Security & Defense and 9 Platt energy journals added
Please see HELP NEWS624 for more
```
  File 634:San Jose Mercury    Jun 1985-2003/Jul 27
        (c) 2003 San Jose Mercury News
  File 636:Gale Group Newsletter DB(TM)  1987-2003/Jul 29
        (c) 2003 The Gale Group
  File 810:Business Wire  1986-1999/Feb 28
        (c) 1999 Business Wire
  File 813:PR Newswire  1987-1999/Apr 30
        (c) 1999 PR Newswire Association Inc


      Set  Items  Description
      ---  -----  -----------
?

S (AUTOMATIC???? (5N) CONTACT???) (S) (CLASS?? OR GROUP??? OR PROFILE?)
Processing
Processing
Processed  10 of  28 files ...
Processing
Processed  20 of  28 files ...
Processing
```

Completed processing all files
```
        2560980  AUTOMATIC????
       14202704  CONTACT???
        4421533  CLASS??
       16445532  GROUP???
        2987337  PROFILE?
   S1      826  (AUTOMATIC???? (5N) CONTACT???) (S) (CLASS?? OR GROUP???
                 OR PROFILE?)
```
?

S S1 AND (VARIABLE (3N) CONTENT)
```
            826  S1
        1043608  VARIABLE
        2812538  CONTENT
           3213  VARIABLE(3N)CONTENT
   S2        2  S1 AND (VARIABLE (3N) CONTENT)
```
?

T S2/TI,KWIC/1-2

2/TI,KWIC/1   (Item 1 from file: 349)
DIALOG(R)File 349:(c) 2003 WIPO/Univentio. All rts. reserv.

CONTINUOUS PRODUCTION AND PACKAGING OF PERISHABLE GOODS IN LOW OXYGEN ENVIRONMENTS
PROCEDE DE PRODUCTION ET D'EMBALLAGE DE PRODUITS PERISSABLES DANS UNE ATMOSPHERE PAUVRE EN OXYGENE

Fulltext Availability:
  Claims

Claim
... of flange 706. In this position, the flaps are located in close
  proximity and in**contact**with the upwardly extending tray sides. Flap
  base 718 is substantially horizontally disposed relative to...that it can
  be "hinged" about the gap 2324 such that flanges 2306 and 2308**contact**
  directly with web 2332 material therebetween. Flanges can then be sealed
  together through web 2332...is shown but having some differences as
  described below. A base 5812 is attached to**profiled**bar 5819 with
  upper assembly, comprising rollers 5860 and 5865 retained by bar 5820 in
  ...

...substantially sealed and separated from the surrounding atmosphere 5822.
  A port 5862 is provided in**profiled** bar 5819
  and in communication with space 5821. A vacuum applied to port 5862 can
  ...described in a later part of this disclosure. Platen 6016 is securely
  attached to a**profiled**fixture 6012, which is shaped to correspond with
  the internal cavity surface**profile**of a pre-form such as these
  disclosed in previous sections. A pre-form 6020...

2/TI,KWIC/2   (Item 2 from file: 349)
DIALOG(R)File 349:(c) 2003 WIPO/Univentio. All rts. reserv.

A SYSTEM, METHOD AND ARTICLE OF MANUFACTURE FOR SWITCHED TELEPHONY COMMUNICATION
SYSTEME PROCEDE ET ARTICLE CONCU POUR LES COMMUNICATIONS TELEPHONIQUES PAR RESEAU COMMUTE

Fulltext Availability:

Detailed Description
... diagram illustrating the state changes
   that may occur in the VOConnection object's m-state**variable**("state
   1 5**variable** ") in accordance with a preferred embodiment;
   Figure 103 shows a state transition diagram illustrating the...algorithms
   and prevent services from monopolizing resources.

   The Resource Management Model tracks resource utilization and
   automaticallytakes corrective action when resource pools are not
   sufficient
   to meet demand. Any service should...
?

S AUTOMATIC???? (S) CONTACT??? (S) PROFILE?
Processing
Processed 10 of 28 files ...
Completed processing all files
       2560980 AUTOMATIC????
      14202704 CONTACT???
       2987337 PROFILE?
     S3   1926 AUTOMATIC???? (S) CONTACT??? (S) PROFILE?
?

S S1 AND S3
         826 S1
        1926 S3
     S4 221 S1 AND S3
?

S S4 AND (AUTOMATIC???? (10N) DIAL???)
         221 S4
      2560980 AUTOMATIC????
     ·1186226 DIAL???
       32254 AUTOMATIC????(10N)DIAL???
     S5   10 S4 AND (AUTOMATIC???? (10N) DIAL???)
?

T S5/TI,KWIC/1-10

5/TI,KWIC/1   (Item 1 from file: 15)
DIALOG(R)File 15:(c) 2003 ProQuest Info&Learning. All rts. reserv.

A place in the sun

...TEXT: Webbased telemarketing campaigns through customer feedback. The
software thus acts as a customer-driven predictive **dialer** .

ContactSentry **automatically** removes irrelevant☐contact☐requests using
rules-based adaptive behavior filters. The module gives live access to an
agent only for customers whose browsing fits a configurable eligibility
 profile . This, says Merlynet, prevents "live☐contact☐overloads," the
inundation of call centers with irrelevant**contact**requests from popular
Web sites. Like C@mpaign, ContactSentry uses an Agent Satisfaction feedback
algorithm...

5/TI,KWIC/2   (Item 2 from file: 15)
DIALOG(R)File 15:(c) 2003 ProQuest Info&Learning. All rts. reserv.

Contact management software: It's not what you know

...TEXT: and it shows. The package provides concurrent access to databases and integrated E-mail, including **automatic** logging to ▯contact▯ histories. It takes its network implementation further, however, by providing workgroup features such as**group**scheduling, action delegation and confirmation, and progress reports distributed to everyone in the workgroup. The program also allows synchronization of contact and schedule data, which lets users in a **group** consolidate information that was collected separately.

Other high-end features include a set of sales...information specific to individual contacts.

For example, you could record the favorite activities for one**contact**and the business background for another. **Profile** fields let you reserve user-defined fields for information common to all of your**contacts** . These fields are also **automatically** indexed for quick searching. The Fields folder is provided to display user-definable fields of...phone number field, another field for subject, and buttons to log incoming calls and to **dial** and log outgoing calls.
Calls were **automatically**timed and logged in a phone log note, viewable in a Notes window or as...Sharkware is the only program of this group that doesn't make entries in the**contact**history▯automatically▯wen a letter or fax is produced, although you can make entries manually.

Reporting

* Act...

5/TI,KWIC/3   (Item 3 from file: 15)
DIALOG(R)File 15:(c) 2003 ProQuest Info&Learning. All rts. reserv.

University Runs Computer-to-PBX Interfaces

ABSTRACT: The University of Minnesota campus network integrates voice and data, and has a uniform **dialing**plan,▯automatic▯call distribution, voice mail, high-speed local area networks and other services that combine to...
...TEXT: higher education.

The University of Minnesota campus network integrates voice and data, has a uniform **dialing** plan, ▯automatic▯ call distribution, voice mail, high-speed local area networks and other services that combine to...

...the Twin Cities campus.

When the call reaches university police, the caller's location is **automatically** displayed on the dispatch terminal. If the point at which the call originates has been preassigned, the information**profile**can include the caller's name, location, emergency**contacts** , medical alerts or other pertinent information as defined by the university. If the call originates from a location with no assigned caller, such as a parking lot emergency phone, the **profile**will display the physical location of the telephone, allowing for immediate emergency dispatch.

The sophisticated...

...network.

If specific university-defined emergency conditions are reported, selected individuals within the corresponding alert**groups**of up to 300 users will be **contacted   automatically** through the multimedia network.

Groups are predefined in the Group Alert program database. The alert...

5/TI,KWIC/4   (Item 1 from file: 16)
DIALOG(R)File 16:(c) 2003 The Gale Group. All rts. reserv.

University runs computer-to-PBX interfaces

...   higher education.
      The University of Minnesota campus network integrates voice and data, has a uniform**dialing**plan,☐automatic☐call distribution, voice mail, high-speed local area networks and other services that combine to...

...the Twin Cities campus.
      When the call reaches university police, the caller's location is **automatically**displayed on the dispatch terminal. If the point at which the call originates has been preassigned, the information**profile**can include the caller's name, location, emergency**contacts** , medical alerts or other pertinent information as defined by the university. If the call originates from a location with no assigned caller, such as a parking lot emergency phone, the**profile**will display the physical location of the telephone, allowing for immediate emergency dispatch.
      The sophisticated...

...network.
      If specific university-defined emergency conditions are reported, selected individuals within the corresponding alert**groups**of up to 300 users will be**contacted   automatically**through the multimedia network.
      Groups are predefined in the Group Alert program database. The alert
...

5/TI,KWIC/5   (Item 1 from file: 148)
DIALOG(R)File 148:(c)2003 The Gale Group. All rts. reserv.

Contact management software: it's not what you know. (review of four Windows packages) (includes related articles on a review summary, features summaries and test methods) (Software Review) (Evaluation)

...   and it shows. The package provides concurrent access to databases and integrated E-mail, including**automatic**logging to☐contact☐ histories. It takes its network implementation further, however, by providing workgroup features such as**group**scheduling, action delegation and confirmation, and progress reports distributed to everyone in the workgroup. The program also allows synchronization of contact and schedule data, which lets users in a**group**consolidate information that was collected separately.
      Other high-end features include a set of sales...information specific to individual contacts.
      For example, you could record the favorite activities for one**contact** and the business background for another.**Profile**fields let you reserve user-defined fields for information common to all of your**contacts** . These fields are also**automatically**indexed for quick searching. The Fields folder is provided to display user-definable fields of...phone number

field, another field for subject, and buttons to log incoming calls and to dialand log outgoing calls.

Calls wereautomaticallytimed and logged in a phone log note, viewable in a Notes window or as...Sharkware is the only program of this group that doesn't make entries in thecontacthistory□automatically□ when a letter or fax is produced, although you can make entries manually.

Reporting
Act...

5/TI,KWIC/6   (Item 2 from file: 148)

University runs computer-to-PBX interfaces. (University of Minnesota campus network) (PBX/Key/ACD Systems)

...ABSTRACT: and higher education. The university's network integrates voice and data. It uses a uniformdialingplan, and it incorporates automaticcall distribution, voice mail and high-speed LANs. It has a campus-wide 911 emergency...

...a caller's location at the dispatch terminal, and for some call locations, stored informationprofilesare called up as well, with information such as a caller's name, emergencycontactsor medical alerts. In specifically defined emergency situations, groups of as many as 300 persons areautomaticallyalerted via the multimedia network.

The University of Minnesota campus network integrates voice and data, has a uniformdialingplan,□automatic□call distribution, voice mail, high-speed local area networks and other services that combine to...

...communications network, anyone on campus can reach the university police, the caller's location isautomaticallydisplayed on the dispatch terminal. If the point at which the call originates has been preassigned, the informationprofilecan include the caller's name, location, emergencycontacts , medical alerts or other pertinent information as defined by the university. If the call originates from a location with no assigned caller, such as a parking lot emergency phone, theprofilewill display the physical location of the telephone, allowing for immediate emergency dispatch.

The sophisticated...

...network.
If specific university-defined emergency conditions are reported, selected individuals within the corresponding alertgroupsof up to 300 users will becontacted   automaticallythrough the multimedia network.

Groups are predefined in the Group Alert program database. The alert ...

5/TI,KWIC/7   (Item 1 from file: 160)

Drug Compliance Increases by Half Through Automated Telephone Reminder, Scientific Study Reports

... of Twinsburg. Med-Minder has been awarded U.S. patent protection as a system thatcontactspharmacy patients□automatically□to remind them that their prescriptions need refilling. Med-Minder, which is installed on-site at a pharmacy, utilizes the pharmacy's patientprofiledatabase, automatic telephone □dialing□and voice synthesizing equipment. Without

interaction or prompting by the pharmacist, Med-Minder **automatically** telephones the patient and delivers a verbal message to have a prescription filled.   . . .

5/TI,KWIC/8   (Item 1 from file: 275)
DIALOG(R)File 275:(c) 2003 The Gale Group. All rts. reserv.

University runs computer-to-PBX interfaces. (University of Minnesota campus network) (PBX/Key/ACD Systems)

...ABSTRACT: and higher education. The university's network integrates voice and data. It uses a uniform **dialing** plan, and it incorporates **automatic** call distribution, voice mail and high-speed LANs. It has a campus-wide 911 emergency...

...a caller's location at the dispatch terminal, and for some call locations, stored information **profiles** are called up as well, with information such as a caller's name, emergency **contacts** or medical alerts. In specifically defined emergency situations, groups of as many as 300 persons are **automatically** alerted via the multimedia network.
        The University of Minnesota campus network integrates voice and data, has a uniform **dialing** plan, □automatic□call distribution, voice mail, high-speed local area networks and other services that combine to...

...communications network, anyone on campus can reach the university police, the caller's location is **automatically** displayed on the dispatch terminal. If the point at which the call originates has been preassigned, the information **profile** can include the caller's name, location, emergency **contacts** , medical alerts or other pertinent information as defined by the university. If the call originates from a location with no assigned caller, such as a parking lot emergency phone, the **profile** will display the physical location of the telephone, allowing for immediate emergency dispatch.
        The sophisticated...

...network.
        If specific university-defined emergency conditions are reported, selected individuals within the corresponding alert **groups** of up to 300 users will be **contacted** **automatically** through the multimedia network.
        Groups are predefined in the Group Alert program database. The alert
. . .

5/TI,KWIC/9   (Item 1 from file: 349)
DIALOG(R)File 349:(c) 2003 WIPO/Univentio. All rts. reserv.

COMBINATION WIRELESS ALARM SYSTEM AND TELEPHONE CONNECTED TO AN INFORMATION MANAGEMENT NETWORK FOR AUTOMATED DELIVERY OF ALARM NOTIFICATIONS AND OTHER INFORMATION
SYSTEME D'ALARME SANS FIL ET TELEPHONE COMBINES RELIES A UN RESEAU DE GESTION DE L'INFORMATION PERMETTANT L'EMISSION AUTOMATIQUE D'ALERTES ET D'AUTRES INFORMATIONS

Fulltext Availability:
  Detailed Description
  Claims

English Abstract
  ...as motion and smoke detectors and medical monitors) communicate with

the base unit (9), which**automatically**calls a proprietary Information
Management Network (IMN, 50). The IMN instantaneously finds, in its
database, the appropriate customer**profile**and causes alert messages,
optionally including customer-specific information from database (78), to
be**automatically**sent, simultaneously or dequentially, to□contact□
persons predesignated by the customer via the customer's chosen media
such as telephone, fax...

Detailed Description
... detected
   on-site by a smoke or burglar alarm or security or environmental
   sensor or**automatically**detected by a sensor or medical
   monitoring device, and then determines what action to command...

...customer database
   and forwards the alarm notification or medical information to the
   designated points of**contact** , simultaneously or sequentially.
   For an alarm notification, the information conveyed includes the
   customer name, location...

...phone number of base
   unit, date, time, type of sensor and zone. The user's**profile**
   residing in the IMN database can be modified at any time over the
   telephone or...

...line is being used for a fax,
   conventional conversation, or any other purpose, the system
 automaticallyterminates the call, freeing the line, and
   initiates the**dial**out process to send the alert signal to the
   IMN. The Base Unit has control...

Claim
... a calling unit (30) in communication with said base unit (9)
   and containing means for**automatic   dialing**out to a remote
   location and for transmitting Dual Tone Multiple Frequency (DTMF)
   signals;
   at...

5/TI,KWIC/10   **(Item 2 from file: 349)**
DIALOG(R)File 349:(c) 2003 WIPO/Univentio. All rts. reserv.

**A METHOD AND APPARATUS FOR NETWORK-BASED SALES FORCE MANAGEMENT
APPAREIL ET PROCEDE DESTINES A LA GESTION DE LA FORCE DE VENTE SUR LA BASE
D'UN RESEAU**

Fulltext Availability:
   Detailed Description
   Claims

English Abstract
   ...support by providing multi-dimensional displays of transactional
   information to users. Transactional information of deals,**contacts** ,
   accounts, and leads is provided over the Internet using a Web browser.
   The information of related transactions is electronically linked, and the
   transactional information is electronically searchable using custom
profiles . The transactional information is accessed and shared among
   host organization members according to a hierarchy...

...stages in a sales pipeline of corresponding deals. New business

information may be selected, wherein**automatic**notification is provided
of new information and changed information relating to transactions,
wherein the new...

...capability is provided that comprises electronic mail, facsimile,
telephones, and paging devices, wherein communication is**automatically**
established using transactional information.

Detailed Description
...   and apparatus for network-based sales force automation are
provided herein. Transactional information of deals,**contacts** ,
accounts, and leads is provided over an Internet using a Web browser. The
information of related transactions is electronically linked, and the
transactional information is electronically searchable using custom
profiles . The transactional information
is accessed and shared among host organization members according to a
hierarchy and predefined territories. The transactional information may
be**automatically**imported from and exported to other applications
comprising Web sites, spreadsheets, databases, and**contact**managers. A
Radar Screen TM
Opportunity Display (RSOD) may be selected on which deal objects...
information with others in the hosting organization. The CIMS system
allows a contact to be**automatically   dialed**by clicking on the listed
contact phone number.

The Deals module provides comprehensive information regarding...

Claim
...   communications comprise electronic mail, facsimile, telephones,
and paging devices, wherein at least one communication is**automatically**
established using information comprising information regarding at least
one lead and the information regarding at...

...deal information, a complete history of events associated with the at
least one deal, and**automatic**access to an internet web site of at
least one customer associated with the at...

...account information, a complete history of events associated with the at
least one account,. and**automatic**access to an internet web site of at
least one customer associated with the at...

...103. The computer readable medium of claim 94, wherein the information
regarding at least one**contact**comprises a history of activities
associated with the at least one**contact** , wherein communication with a
representative of the at least one**contact**is□automatically□
established using the information regarding at least one**contact** .
150
1 56 User co
cn
IT! 156
in INTRANET User wor station
m 15...

...SELECT ACC >@ DISPLAY
412 L ES ---> DISPLAY
N%
414 1 YES DISPLAY
Zo,@f SELECT**CONTACTS** ?
I
416 O@ n') YES
SELECT CALENDAR. , > DISPLAY

418 N% E
@@S@ELECT TO-DO...List No List of industry categories.
w
M Default = "(none)".
Territory Built-in Link No**Automatically**generated list of curn
M territories.
M
X Account Phone Number Phone No
M
M...

...Industry
M
Code number as defined by US
0)
Department of Commerce.
Amunt Address Address**Group**No
Fla 10
1100
FIELD NAME FIELD TYPE REQUIRED? MMEAMS
ContactNaine Name☐Group☐Yes
Account Built-in Link No**Automatically**generated list of curri
active accounts,
FIELP MAKE FIELP TYPE REQUIREP? COMMEA17
Deal Description Short Text Yes
Account Built-in Link Yes**Automatically**generated list of curr,
accounts*
Projected Close Date Date iYes
Stage List Yes List of...

...x on list.
m
m Probability of Closing Percent Yes
Territory Built-in Link Yes**Automatically**generated list of cum
r territories.
m
Source List Yes List of currently defined deal...

...Modification@'
m
DEALS are REASSIGNED to a Different Territory PI
c
r@
m A NEW**CONTACT**is Created
A**CONTACT**is MODIFIED 1304
V Fields to Monitor For Modificatio@'
A TERRITORY'S OWNERSHIP is MODIFIED...

...1410
E] Qualifications
El Account El
DEALS are REASSIGNED to a Different Territory
A NEW**CONTACT**is Created
A**CONTACT**is MODIFIED
@ Fields to Monitor For Modification
A TERRITORY'S OWNERSHIP is MODIFIED
FA I...

...1 6
/45

NEW Button Use to create a new lead, account, to do item, **contact** , appointment, or deal, using the New Leads screen, New Accounts screen, New To Do screen., New**Contacts**screen, New Appointment screen, or Now Deals screen. NEW. Click on the plus sign H...

...of all record types that can be created. Click the desired option.
L@
Select the**profile**to use to determine which accounts are displayed in the ACCOUNT SHOW drop-down LIST. Choose Active Accounts, Inactive Accounts, All Accounts, or any custom-defined menu**profile** . RECORDS control e to specify which accounts appear on the current page. SEARCH button el...

...COMMUNICATE Click to send communications (mail, fax, e-mall, quote, labels, or envelopes) to button**contacts**associated with the selected accounts.**PROFILE**button Click to display the Account☐Profiles☐ screen, which can be used to create, view, edit, and delete**profiles** . Displays accounts according to the selection in the SHOW drop-down menu. Sort the Account...RULE 26)
/45
NEW Button Use to create a new lead, account, to do item, **contact** , appointment, or deal, using the New Leads screen, New Accounts screen, New To Do screen, New**Contacts**screen, Now Appointment screen, or New Deals screen. NEW. -D Click on the plus sign...

...with this appointment. Only deals associated with the drop-down menu selected account are displayed.**CONTACTS**scroll Select contgot(s) to include in this appointment by clicking the**contact**name or names. box The**contacts**on the menu are the☐contacts☐associated with the account entered in the Account field. To select or deselect multiple**contacts** , use control-click. CO-WORKERS Select co-worker(s) to include in this appointment by...NEW Button Use to create a new lead, deal, to do item, account, appointment, or**contact** , using the New Leads screen/ New Accounts screen, New To Do screen, New**Contacts**screen, New Appointment screen, or New Deals screen. NEW. Click on the plus sign H...

...of all record types that can be created. Click the desired option. SHOW Select the**profile**to use to determine which☐contacts☐are displayed in the**CONTACTLIST**. Choose Active☐Contacts☐ , Inactive☐Contacts☐ , All **Contacts** , Personal☐Contacts☐ , or
drop-down menu
any custom-defined**profile** .
IRECORDS control pecify which**contacts**appear on the current page, SEARCH button Click to search for**contacts**matching the criteria which you can specify on the Search screen. COMMUNICATE Click to send communications (mail, fax, e-mail, quote, labels, or envelopes) to the button selected accounts.**PROFILE**button Cl ck to display the☐Contact☐ **Profiles**screen, which can be used to create, view, edit and delete **profiles** . Displays☐contacts☐according to the selection in the SHOW drop-down menu. Sort the**CONTACTLIST**☐Contact☐List by clicking on a column heading and use the**CONTACTLIST** sort arrows to determine the sort order. Click on an**CONTACTLIST** item twist-down to display detail information about
the**contact** ,
CONTACTLIST Click on a right-pointing twist-down to display details about a**contact** , The. Item twist-down twist-down will point downward when details are displayed. Click the downwardqV pointing twist-down (v) to hide the details.**CONTACTLIST** indicates which direction a column is being sorted: descending (,&) or ascending (,w). sort arrows...
...column, click an the column heading.

qW I&
EDIT Icon Click the "pencil' by a**CONTACT**LIST Item to display the Edit
Contactscreen and Ao;@, edit or delete an account.
FA 42 44
SUBSTITUTE SHEET (RULE 26)
/45
NAME Enter the**contact** 's name by selecting a salutation (such as Ms. or
Dr.) from the SALUTATION drop...

...and typing the last name into the LAST text box. PERSONAL Click to make
this**contact**personal.
checkbox
Type the full name or the first few letters of the account associated...

...menu. GET ACCOUNT Click to retrieve the address information for the
account associated with this**contact** * ADDRESS button Use this feature
only if the**contact**shares the same address as the account, SAVE
CONTACTClick to save this☐contact☐to the database.
button
SAVE& ADD Click to save this**contact**and open a New Deal screen with
that account name and DEAL button associated**contact**filled in. CLEAR
FORM Click to clear the entered information without saving It.
button
CLOSE button Click to close the screen without saving the**contact** , Use
this button after you have entered and saved all your**contacts**with the
SAVE**CONTACT**button.
FA 4205
SUBSTITUTE SHEET (RULE 26)
/45
NEW Button Use to create a new lead, account, to do item,**contact** ,
appointment, or deal, using the Now Leads screen, New Accounts screen ',
New To Do screen, New**Contacts**screen,
New Appointment screen, or New Deals screen,
NEW . . . Click on the plus sign (+) to...

...of all record types that can be created. Click the desired ption. SHOW
-Select the**profile**to use to determine which deals are displayed in
the DEAL LIST. drop-down menu...

...Active Deals, All Deals, Closed Deals, Inactive Deals, Leads, Open
Deals, or any custom-defined**profile** .
IRECORDS control se to specify which deals appear on the current page,
SEARCH button Click...
...send communications (mail, fox, e-mail, quote, labels, or envelopes) to
the button selected deals.**PROFILE**button Click to display the Deal
Profilesscreen, which can be used to create, view, edit, and delete
profiles . Displays deals according to the selection in the SHOW
drop-down menu. Sort the DEAL...names on a drop-down menu. I fSelect the
desired account name from the menu.**CONTACTS**Select the☐contact☐ (s)
withe which this deal is associated. This list appears after the
drop-down menu...

...are underlined are required information. A new account will be created
from this information.
NO**CONTACT**
INFORMATION Click if there is no**contact**currently associated with this
lead.
checkbox
CONTACTEnter the specified☐contact☐information, if available.
INFORMATION

DEAL Enter any available lead information.
INFORMATION
SAVE LEAD Click to...

...type of deals to be displayed: Active, All, Closed, Inactive, Leads, or
a Mena custom**profile**on the menu. You can also create a new gMfile.
Appears when the Days Until...

...IS THE TARGET, SUCH AS
GETTING A DEAL BOOKED,
c
r@
m
3530 REGIONS ARE**GROUPED**IN QUADRANTS:
NW IN TOP LEFT
NE IN TOP RIGHT
SW IN BOTTOM LEFT
SE...records from multiple tables it once
Search key fields (Account Name, Deal Description,
Cn Yes
ContactName)
@4 ISearch Non-key data fields
M
Cn
x Within a single record type...

...to setup
and use)
/45
ACCOUNTS Click to include account records in the search.
checkbox
CONTACTSel ck to include□contact□records in the search.
checkbox
DEALS checkbox FFc@kto include deal records in the search...

...search. Records matching the FIND text field are RESULTS box displayed
in up to three**groups**(accounts,□contacts□ , and deals). Each record is
underlined so that you can hyperlink to a detail view...

...search. SEARCH button Click to start the search and display the results
on the Account,**Contact** , or Deal List, as appropriate. CANCEL button Cl
ck to close the screen and cancel...

...F/(* 59
- SUBSTITUTE SHEET (RULE 26)
/45
NAME text field Type the name of the**profile** . This value will appear in
the SHOW dropAown menu on the list screen. DESCRIPTION If desired, type a
longer description of the**profile** .
text field
Select the access type from the drop-down menu.**PROFILE**Select
"private" if you are the only person who will be using the**profile** . The
profileACCESS will display on your list screen SHOW drop down menu
only. drop-down menu Select "shared" to allow co-workers to use the
profile . The□profile□will appear on t e SHOW drop-down menu of all
co-workers.
PROFILE
SELECTION fields Define your selection criteria. Click a RESTRICT
checkbox to choose a field to...

...part of the selection criteria.- Then define the selection criterion for that field.
checkboxes
SAVE**PROFILE**Click to save the☐profile☐and return to the list screen from which you came. The**profile**button you created will be in effect and will be displayed on the SHOW drop-down menu.
TlIck
[CANCEL button to exit the New**Profile**screen without saving the **profile** .
11a 40
SUBSTITUTE SHEET (RULE 26)
/45
NEW Button Use to create a new lead, account, to do item,**contact** , appointment, or deal, using the ,New Leads screen, New Accounts screen, Now To Do screent New**Contacts**screen, New Appointment screen, or New Deals screen. NEW. . . 'Click on the plus sign H...

...of all record types that can be created. Click the desired option,
SHOW Select the**profile**to use to determine which to do items are displayed in the TO DO LIST...
?

Other Users for those with log-in rights), Journal, and Expenses.

Maximizer's extensive preferences' settings include data transfer, modem, calendar, date format, and other options. If multiple users are set up, they can choose their own preferences, which will be invoked upon log-in.

Importing a comma-delimited ASCII database was more complicated in Maximizer than in any other program except GoldMine.

This is because the client/contact structure requires two passes, one to set up clients and a second for contacts, each with its own field mapping.

We could, however, have done it in one pass with all records as clients, if we'd so chosen.

Other import formats are .CSV (comma-separated values) and tab-delimited.

We easily updated one database with selected records from another, changing what kinds of data to transfer (such as categories, history, calendar, and so on) from a full range of options. The program generated a detailed transfer summary report.
* Sharkware Professional

GOOD

Sharkware's installation routine lets you change the installed drive and directory from the default choices, as well as respecify the word processor and fax applications you want to use with the program. Sharkware also comes with a reference database that includes addresses and phone numbers for hotels, airlines, and other useful organizations. The setup routine doesn't let you choose from individual modules or provide you with information on required and available disk space, unless you don't have enough space for the program.

Once we had completed the setup, the program kicked us back out to DOS--apparently accidentally--and the same thing happened on multiple tries. On a different computer, Windows simply hung after the installation was complete.

The first thing we saw when opening Sharkware was a quote of the day from Harry Mackay. We disabled this as a startup option and clicked out to the contact manager screen--a set of fields for a single contact, with a tab-folder display area beneath. Sharkware displays fewer fixed fields here than GoldMine--only name, company, address, phone numbers, and six key fields (indexed custom fields set up by default are for spouse's names, the contact's and spouse's birthdays, account number and type, and occupation)--but it also displays current groups of contacts (if any are defined) and a selection box for alternate addresses.

The tabbed-folder area includes folders for activities, three types of history (contact, correspondence, and proposal), notes, custom fields, and the Mackay 66, a list of information about the current contact. If you are so inclined, you can enter 66 pieces of data--including information on education, family, business background, special interests, and lifestyle--about each of your contacts.

The File menu's Preferences command brings up a tab dialog with folders for display colors, system defaults, user information, activity options, write options, and modem settings. There is no way to set up the program for multiple users.

Mapping fields to import a comma-delimited ASCII database was almost as easy as with Act, and more flexible for separating combined fields, such as full names and city/state/ZIP fields, into separate fields on import. We appreciated the option to select a contact group into which the database could be imported. Also, .DBF files can be imported.

We found no provision for merging or reconciling two Sharkware databases, as from a laptop to a desktop system.

Record Management

* Act 2.0 for Windows

VERY GOOD

Act's extensive range of layout became even more important when we discovered we couldn't rearrange any of them or create or remove fields. This lack of flexibility wasn't overly important, however, because it was very easy to customize the 15 user-defined fields by giving them labels, assigning them one of eight data types, and setting them up with an impressive range of attributes.

To cut down on data entry errors, you could configure a field to be a pop-up list of prekeyed entry options from which the user simply chooses. You can also redefine many of the preset fields. Unfortunately, you can't assign mathematical calculations to fields or associate fields with individual records.

Data can be entered into any layout view. The program let us enter default values for whatever fields we chose, so that these values would automatically appear for new records; this is handy when entering data for numerous contacts with identical information in certain fields, such as buyers of the same line of clothing When creating a new contact record, we were given the choice between applying the default values, carrying over the main values (name, company, phone numbers, and so on) from the current contact, or carrying over all values from the current contact.

Assigning contacts to groups in Act is performed from the Edit Groups command, which Symantec chose to place in the View menu. This location is not very intuitive, but managing groups is relatively simple. Small list boxes allowed us to view and select members of any group to add to any other group. A dialog box listing groups by name made switching among groups a straightforward matter.

* GoldMine 2.5a for Windows

EXCELLENT
Multiple windows, each displaying information on a different contact, may be open at the same time. We were able to modify the part of the window containing 27 fields--of the most commonly used data, but only to the extent of defining new key fields five user-defined fields that are automatically indexed for quick searching. The rest of the 27 fields are permanent, though we were able to change their labels.

In the tab-folder area at the bottom of the contact window, we were able to create two other types of user-defined fields. The first is the Profile folder, which is for recording miscellaneous information specific to individual contacts.

For example, you could record the favorite activities for one**contact**and the business background for another. **Profile** fields let you reserve user-defined fields for information common to all of your**contacts** . These fields are also **automatically** indexed for quick searching. The Fields folder is provided to display user-definable fields of a second type. These are custom fields of three data formats: character, date, and numeric. Users can create an unlimited number of these fields. The primary difference between these fields and the key fields is that the key fields are indexed for searching, whereas these are not.

Clicking anywhere in the Fields folder with the right-mouse button provided access to the Field Views dialog, which let us arrange and save alternate ways of looking at our fields. We could also tie a particular field view to selected contact databases. The program let us protect fields (to prevent editing of contents),make them required (to force valid entries), or hide them from selected users.

Other alternatives available in the tab-folder area include the Summary folder, which shows a record of previous and pending activities--meetings, phone calls, and so on--associated with the current contact; Notes, for any free-form notes you might want to attach to a contact; Contacts, for entering and viewing additional contacts, such as employees, associated with the current contact; Referrals, in which you can link contacts within a database; and Pending: and History, each of which displays more detailed records of actions (such as appointments, calls, and to-dos) pertaining to the current contact than is given in the Summary folder. A Links folder holds any DDE-linked documents, such as images, voice clips, and the like.

We set up and filled groups by clicking the Groups icon. The resultant Groups dialog and its local menu allowed us to create, populate, edit, and delete groups as well as switch between or release them. The record object's title bar reflected the active group.
* Maximizer for Windows, Version 1.2

GOOD

The contents of the editing and data entry window varied slightly according to whether the record was defined as a client or a contact.

Here we entered all the basic information, including name, address, as many as four phone numbers, and last/next contact dates. We could also specify alternate addresses and whether to use an alternate address as the mailing address.

We were able to set up default company and individual clients by assigning them a special ID in the dialog's ID/Security area, which kept us from having to repeatedly enter field entries common to multiple contacts.

Maximizer lets you create and modify four types of custom fields (called categories in Maximizer): table (lookups), alphanumeric, numeric, and date. For date categories, check boxes are activated that let you include the contact in the Hotlist and Annually Recurring Event.

Unlike standard fields, Maximizer's categories could apply to as many or as few records as desired; the downside to this flexibility is that they have to be attached one by one to contacts or clients, a tedious process involving another dialog within which each record's category content is entered. To automate this operation, we recorded a macro to add our categories to each record, with dummy values in each category. We then changed the values in the categories to the correct ones for individual contacts. Maximizer has no feature for consolidating contacts into groups,

but you can group contacts with the Catalog feature.

* Sharkware Professional

GOOD

Except for the names, Sharkware's screens for adding and editing contacts
are identical, providing 23 permanent fields for the usual contact
information.

We entered alternate addresses for both shipping and billing, which showed
up in the Contact display; other choices on the Address pop-up list were
office, home and vacation. As with the rest of Sharkware's liberally use
pop-up lists, w could readily ad items to Address.
We streamlined data entry by entering default response and automatic pop-up
lists for five of the permanent fields: salutation, title, address type
(office/home); phone type, and print title/company.

Sharkware has so many built-in specialty fields that we didn't have to
create new ones to complete our tasks, which is fortunate because creating
custom fields took a little perseverance. Getting to the dialog box for
customizing contact fields required navigating from the File/Maintenance
submenu to the Databases command and associated Database Maintenance
dialog. This dialog provided a number of options, including a button for
Custom Fields that brought up a table matrix in which we could enter field
names, one of four data types (string, date, number, dollar), and pop-up
list settings. We then reconfigured the key fields displayed in the primary
information area to include our new custom fields.

It was reasonably easy to create two new contact groups and assign contacts
to them by displaying each contact, opening the Groups dialog from the
Contacts menu, and adding new groups to those already pertaining to the
contacts.

Afterward, we could switch among currently active groups by clicking on the
list in the Groups display.
Searching and analysis

* Act 2.0 for Windows

Excellent

Act provides three search methods depending on the type of information to
be queried: keyword (string) searches on the entire database, lookups on
indexed fields, and lookups on multiple fields.

Unfortunately, except for the straight indexed-field lookups, all of Act's
searches ran fairly slowly.

We searched for a phrase with wild cards using Act's keyword search. This
involved selecting Keyword from the Lookup menu and filling in the search
string in the dialog.

The search took a fair amount of time--roughly a full minute on our test
platform, using a database of more than 500 records--and produced three
hits, one on a note.

We did searches on the company and ZIP code indexed fields by selecting
them from the Lookup menu and filling in our search criteria. The lookup
searches accepted partial entries and were almost instantaneous but did not

allow either wild cards or Boolean operators.

For more powerful field-based searching, we turned to the Lookup menu's Other choice. This put us in a blank version of the last active record view. Here we entered search criteria in multiple fields, including indexed and nonindexed fields. Boolean logic queries are referred to as SmartQueries in Act, and users can convert form-based queries into Boolean queries through the Convert to SmartQuery command.

We performed a Boolean search using wild cards, searching for records in which the company name started with "Del" or "Savory" and the title was not "Mr."

When we chose Sort from the Query menu before we executed the search, the program let us automatically sort the results in ascending order on any of the indexed fields or on several (seemingly random) user-defined fields. We could then save our query for reuse.

* GoldMine 2.5a for Windows
EXCELLENT

GoldMine provides three main means of querying the contact database: indexed searches, full searches, and filters.

Indexed searches are based on seven indexed fields and five user-defined key fields. You can immediately search by company, last name, phone number, and city by choosing these items directly off the Query menu. An Indexed Fields command provides a submenu listing the rest of the fields. We selected Company and entered the target name in the Find Value field; the contact listing displayed beneath it was updated almost instantaneously as we typed. To synchronize the record window with the currently selected contact listing, we checked the Sync Record Window box.

For unindexed data, we could have GoldMine comb through any or all of the Summary and Fields folders, the Notes field, and the primary fields (the upper portion of the contact window). These searches could find a string anywhere within the search range—even across fields. They were a good deal faster than lookups in Act, but Boolean expressions were not allowed in unindexed searches.

The third type of search method, filtering, does allow Boolean expressions. Filters allow more complex search criteria than either indexed searches or full searches. We were able to choose existing filter expressions or create and save new ones. The Expression Builder dialog, very helpful if you aren't familiar with xBase expressions, provides field and operator lists and half a dozen buttons to help generate a filter expression's elements.

Building a filter was complicated, the procedures were not intuitive, and the documentation did not make the process clear. Nevertheless, we were able to create filters with a full range of logical operations, including Starts With, Contains, Is Empty, parentheses, and negations. Complex expressions involving multiple fields were available. Once a filter was activated, its name appeared in the window title, and it remained active until we released it.

Sorting was straightforward, and we were able to sort the current contact list at any time on any of the indexed fields.

* Maximizer for Windows, Version 1.2

GOOD

Maximizer provides some uniquely limited and at the same time convenient and powerful search tools. Like GoldMine and Act, it allows searches based on both indexed and nonindexed fields; in Maximizer, the two search procedures are virtually identical except that indexed fields search faster in very large databases.

Both types are single-field based and could not search on multiple fields in one pass. However, we were able to specify a range for most fields, search on negative conditions (for example, find all contacts that do not live in Cincinnati), use Boolean "and," "or," and "not" in the user-assigned Categories fields only, and search progressively, narrowing the list with each pass. Wild cards were accepted in all but Categories and Date fields.

Indexed fields include Last Name, Company, City, State, ZIP, Last Contact, Next Contact, Client ID, Phone Number 1, Categories, and Notes. Many of the remaining fields are searchable as nonindexed fields. Maximizer unfortunately does not maintain a record of any prior search, or even a description of the current one, so it is easy to lose track of progressive search criteria. Neither searches nor results could be saved.

It's easy to sort columns in the Clients, Contacts, and Hotlist windows by simply clicking on the column title.
* Sharkware Professional

GOOD

Sharkware provides two main methods of querying the database: Find and Search. Find is useful for locating a person or group to act upon, or for searching on a single contact criterion. Search is harder to use, but it adds the capability of searching on activities, histories, custom fields, and Mackay profile information. The full search utility also lets you search on multiple criteria and generates lists of contacts to act upon (to generate a report, for example).

Both methods are field based, so we were unable to search the whole database for a string in a single pass. We used Search to look for instances of "job" in the Notes field, which it found. Then we tried searching for "job"("%" is Sharkware's wild-card character, which is available when the operator is "contains" or "not contains"), but for some reason this feature didn't work on our test database.

Multiple-field searches were easy with the program's Boolean expression generator, with drop-down lists that let us choose which field to search, the operator, and our search criteria. For displaying search results, we could select fields from a list and choose the sort order, which made sorting on multiple criteria as easy as defining a multiple-criteria search.

Scheduling and contact history

* Act 2.0 for Windows

VERY GOOD

Act provides convenient Day, Week, Month, and Task List views, each with its complement of buttons.

We scheduled and set alarms for two phone calls, a meeting, and a fax from the Schedule menu's Call, Meeting, and To-Do screens, respectively, all of which provide a calendar for date selection and an appointment book-style day schedule. Schedule conflicts were flagged, even when the conflict was a recurring event. If there was a conflict, Act gave us the option to accept or reschedule, but for some reason we had to reschedule through dialog fields; the calendar/daybook layout was not available for rescheduling. The program has no group scheduling capabilities.

When an alarm passed while the program was running in the background, a single beep sounded. Only when we returned to the program did Act provide a visual alert, but it came with handy Goto, Reschedule, and Snooze buttons. The same alert appeared on starting up the program if an alarm had passed while it was not running.

It was easy to set up recurring events, but we were unable to automatically schedule an event for the first Friday of each month--events based on days of the week were available only when scheduled on a weekly basis.

Act provides no separate phone log, but all events, including phone calls, were properly logged in the contact history. The program let us designate calls as completed, attempted, or received, as well as indicate when we left a message.

For other types of contacts, the program by default maintained a history of changes to the Last Results, ID/Status, Meetings, To-Dos, Letter Name, Letter Date, and Access fields. We were able to set an attribute so that changes to other fields were also recorded in the history. History entries were tabular, with columns for date, time, name of field, and event.

Within a history dialog box, only events were searchable. History entries could be deleted or purged but not edited; we found no ready means to include documents other than letters sent or received. The only means we discovered to annotate the history for any type of event was to edit the pop-up list for the event's subject or purpose to include a more specific description.

* GoldMine 2.5a for Windows

VERY GOOD

GoldMine provides a tab-dialog calendar window with VCR-style controls and a calendar display that is a little too small for comfortable viewing, especially in Week mode. Other tabs include Day, Month, and Year, and we could zoom in on events by double-clicking them.

Using both the menu and shortcut toolbar buttons, we scheduled and set alarms for multiple phone calls, meetings, and to-do activities, including E-mail. Among the conveniences was an Available Time button, which popped up a daily time line with commitments marked and a readout of available time blocks. We were able to schedule individual faxes to be sent automatically but not merged form-letter faxes.

Setting an activity at a date and time that conflicted with another scheduled activity immediately resulted in a pop-up notification with full details of the prior engagement, which we could either ignore or acknowledge. Acknowledging by clicking OK returned us to the scheduling window, where we could change the date or time of the conflicting. activity.

Group scheduling and delegation of activities is accomplished within the Scheduling window. We were able to select from among the other users set up

in the program and send copies of an activity to them. Unfortunately, conflict checking did not work for activities sent to other users.

Alarms we had set popped up over other applications if GoldMine was running in the background, or upon reloading GoldMine if it was not running at the time of the alarm. The alarm notification let us view the contact, kill all alarms for the session, click the Snooze button for a respite of specifiable length, click Ignore for 1 minute of relief, or click OK to acknowledge the alarm and act on it.

GoldMine handles recurring events more flexibly than Act, and it lets you set events for a specified weekday (first Friday, for example) of each month if you wish; recurring event conflicts were duly reported.
The program has extensive auto-dialing options, offering all four of the current contact's phone numbers as well as the opportunity to redial the last number, dial manually, and log an incoming call. When we used this submenu, the call timer automatically started. The timer could be operated manually, as well.

Activities (such as appointments; letters, faxes, and other merged documents; phone calls; E-mail; to-dos; and more) with date stamps are automatically logged in the History folder separately for each user. Clicking the Zoom button brings up details, including optional notes. We could place standard actions or odd items in the history with relative ease. Using the local menu, we could zoom in for a look at the action itself, analyze sales for the contact, edit, and delete the history entry. The History folder was not searchable.

* Maximizer for Windows, Version 1.2

VERY GOOD

Maximizer's Hotlist (a list of to-dos and reminders) and Calendar (a graphical display of the user's schedule) share the program's scheduling responsibilities. We could schedule in either the Hotlist or the Calendar, and both are logged to the history. The Calendar, however, is set up to handle appointments only. Appointments made in the Calendar show up in the Hotlist but not vice versa. The documentation advises using the Calendar only as an appointment book and managing other activities, such as phone call scheduling, from the Hotlist.

We scheduled several phone calls in the Hotlist by dragging a contact name from the Clients window and entering date, time, activity, notes, and priority in the dialog that popped up. There is also a check box for Done. Unfortunately, neither conflict checking nor alarms are available for items scheduled in the Hotlist.

We next scheduled several meetings in the Calendar, including one every Wednesday for the next month, also by dragging names from the Clients window. The same dialog as in the Hotlist popped up, with the addition of an option to set the entry as a recurring event. As in Act, we were not able to schedule an appointment for a given weekday (such as the first Friday) of each month. Conflict checking and alarms, however, were active for items entered in the Calendar.

Group scheduling is one of Maximizer's definite strong points. We were able to check and correlate selected users automatically for free time, schedule the appointment, and send it to each user's Calendar with no hassles. When we intentionally scheduled a conflict on another user's Calendar, we were notified immediately.

Scheduling faxes for delayed transmission is possible only when using Delrina's WinFax Pro. With WinFax's driver selected as the default printer, the Print and future date and 1 Print Merge dialogs let us send a fax immediately or specify a future date and time.

The Calendar's interface--which sports buttons to switch between daily, weekly, monthly, and bimonthly views--isn't glamorous, but at least it's effective. The Hotlist has only one type of layout, but you can have it list items for today, tomorrow, yesterday, this week, next week, or a custom specified range. You can also change the range at any time.

We dialed calls from the Hotlist by selecting the particular client and clicking the phone button on the toolbar. This popped up a dialog with the client's name, phone numbers, phone number field, another field for subject, and buttons to log incoming calls and to **dial** and log outgoing calls.

Calls were **automatically** timed and logged in a phone log note, viewable in a Notes window or as a separate phone log. We set our system to log histories to Notes. Double-clicking on an item popped up a dialog box showing the entire note, which could be edited and searched.

History logging was controlled in Preferences, where we set automatic Notes entries for documents (including faxes), envelopes, labels, completed tasks, phone calls, and call times. We could alternatively have logged these actions to the Journal; the difference between the two is that the Journal is not attached to particular contacts, whereas Notes is. Each is editable (including the automatically affixed date and time stamps) and searchable. Maximizer does not support E-mail integration, so E-mail messages are not logged into histories.

* Sharkware Professional

GOOD

Sharkware provides toolbar buttons for scheduling appointments, to-dos, and phone calls. We could view a listing of each type of activity separately, either in its own window or as a listing a daily view. A weekly view is also available.
Scheduling was a simple matter of opening a view that included the kind of activity we wanted, clicking on a date in the miniature calendar display, choosing a blank line in the table matrix, and filling in the boxes (many using pop-up lists) in the Activities Description dialog. We could then edit the priority, contact, event description, note, or alarm setting. Appointments could be scheduled as recurring, complete with first-Friday-of-the-month capabilities. Rescheduling any event for a different day was as easy as dragging it to the calendar and dropping it on the desired date.

Alarms are both audible (beeps) and visible (a pop-up dialog), even when Sharkware is running in the background, and a Snooze button is provided that lets you specify a few more minutes (or a few more hours) to get your act together. When the program was not loaded at the time of an alarm, we were notified of the alarm within a few minutes of reopening Sharkware.

Conflicts between appointments generated an alert, but those involving other activity types, such as phone calls, did not. Sharkware has no group scheduling or fax scheduling capabilities.

An extensive phone dialing dialog provided a range of options for logging and timing calls and reporting status and results. The program maintained a phone log we could print as a report but not view; we were able to view calls only in the history.

By default, Sharkware's history folders come in three flavors--Contact History, Correspondence History, and Proposal History--all of which are maintained in the tab-folder section. (You can readily create other folders.) You can add or delete entries and attach and edit notes. Sharkware does not automatically add entries other than phone calls to histories; you have to do this manually using menu commands. History folders are searchable.

Document creation

* Act 2.0 for Windows

VERY GOOD

Act's built-in word processor easily handled our form-letter task, including creating templates using contact-record fields, formatting the entire document and selected type within it, and performing a mail merge with selected contact records.
The program provides a basic set of templates, and we could create our own. When we selected a new letter template, most of the fields we wanted were already in place in the default template that appeared, including our own name and title in the signature block. We added one more field to the letter body, referring to an item ordered but temporarily out of stock, by selecting a custom field we had previously set up as Item. We entered the rest of the body copy, altered the default formatting, ran the spelling checker, and saved the new template. Style sheets were not available.

To use our new template, we selected Form Letter from the Write menu and chose our template from the list. And voila!--the merge was performed, and we had a single file with a version of the letter for each selected contact. We could save the letters to a file, print them immediately, or defer printing until a later time; for this last option, Act reminded us on exiting that the job still needed printing--a handy feature for road warriors.

Faxing was just as easy, except that we had to select our WinFax Pro driver from the Printer Setup command first and dick the Send button when that application popped up.

When printing or faxing the document, a dialog popped up asking if this was a final version to be sent out. When we checked Yes, the letter was recorded in the contacts' histories.

You can also link Act as a source for many DDE-enabled applications. The package includes templates for use with Microsoft Word for Windows (2.0c and later), Ami Pro, and WordPerfect. The templates made it easy to create letters, faxes, and so on, using fields in Act's database.

* GoldMine 2.5a for Windows

GOOD

GoldMine relies on either Microsoft Word for Windows (2.0 or later) or Ami Pro for document creation. Although it provided a basic set of templates for use with each program, implementing the templates took a bit of work

and resulted in GoldMine getting a lower score in this category than it otherwise would have.

In order to create and print a form letter, we first had to install the DDE links each time we loaded the program and then set the program up for Word 6.0 for Windows. We also had to switch Word's view to display field codes and then use a command that GoldMine added to Word's Insert menu to place a database field into the body of the template we wished to create.

One source of perplexity in this fairly involved process turned out to be a lack of communication between GoldMine and Word regarding the location of the new template. We had instructed GoldMine to look for it in a document directory, but our Word program had been set up to place .DOT files in its own template subdirectory by default, which is where it ended up. We did eventually get the template working and could use all of Word's powerful formatting features, including style sheets and the spelling checker.

We then created a contact group with which we merged the form letter, sending it to the printer and the fax/modem. Both were recorded in the contacts' histories.

For those willing to get under the hood and tinker, GoldMine supports DDE as both client and server.

Creating DDE links would allow users to extract data from GoldMine automatically for use in other applications, for instance, or to insert external documents in GoldMine contact records.

* Maximizer for Windows, Version 1.2
VERY GOOD

Although we started it from within Maximizer, the program's MaxEdit module ran as a separate application, meaning we could start multiple instances of MaxEdit (if we wanted to work on multiple form letters simultaneously) or work in the main program while the editor printed or faxed form letters. DDE links were also possible with third-party Windows word processors and other applications, and documents already set up for DDE linking were included for Word for Windows, WordPerfect for Windows, and Ami Pro. We used MaxEdit for our testing, however.

Creating a new form-letter template involved specifying a name and whether we wanted the template Public or Private (available to all users or just us). We selected Public and chose the letter template from a list of templates. The template we chose opened in the editor window, where we added body copy and a block containing our name and position.

MaxEdit provided a drop-down list of all the database's fields and categories, making it very easy to insert one in the letter body. Basic formatting and editing tools, including search and replace, spell checking, thesaurus, language specification, and tab settings were available. Unfortunately, Maximizer has no provision for headers, footers, or page numbers.

We saved the template, selected a range of contacts, and opened a new document, selecting our template from the list. We then chose Print Merge from the File menu, clicked OK, and watched as the first of our letters came up on-screen for review. The program let us print the current letter, skip it and move on to the next one, or print all the letters. We used the same easy procedure for faxing.

Both form letters and faxes were automatically recorded in the contacts' histories, although the program didn't distinguish letters from faxes. A work-around was to include the word "fax" in the template name used for faxes.

* Sharkware Professional

GOOD

Sharkware does not come with a word processor of its own, but it integrates with the word processor you specify in the installation process (you can change this specification from the Preferences dialog after you've installed the program). Preset options include Ami Pro, Word for Windows, WordPerfect, and Windows Write. Alternatively, we could have specified an unlisted word processor, but Sharkware does not provide DDE links to any but the four listed. Without these links, we would not have been able to use document templates or mere a letter with multiple contacts.

When we selected Create from the Write menu, Sharkware launched Word with a Sharkware toolbar added for mail merge and data functions. We added our body copy and a block containing our name and title to the existing Form Letter template, including a custom field. Word's powerful formatting options were available for reformatting, and we then saved the file under a new name.

To perform the merge, we returned Sharkware Pro and selected our contacts, sorted them by last and first names, and specified the name of our new template. Our only objection was the noticeable wait in creating the form-letter file.

An easier procedure was called for in creating a fax cover sheet with the template provided. We could add comments to the cover sheet, but we couldn't merge multiple contacts with form letters for faxing. The fax program was launched automatically, but we had to attach any documents through the WinFax Pro interface.

Sharkware is the only program of this group that doesn't make entries in the **contact** history □automatically□ wen a letter or fax is produced, although you can make entries manually.

Reporting

* Act 2.0 for Windows

EXCELLENT

Act includes templates for an extensive range of reports, including Avery labels, Day-Timer, DayRunner, Franklin address books and calendars, and several other formats. The program provides other templates: activities completed, history summary future activity, task list, status report, contact report, notes, directory (names and addresses), and phone list. Nine mailing-label templates and one rotary index card template are included as well, keyed to Avery's numbered formats. Templates can be modified or created.

We previewed a standard contact report showing a snapshot of the fields in the two main contact-screen layouts, with history, activities (including future activities), and notes. We selected the current contact (our other choices were contacts in the current lookup and all contacts in the database) and directed the output to a file for review. Alternatively, we

could have printed the report directly or sent it via E-mail.

We then modified the status report template to include a product field. This involved choosing Edit Template from the Report menu and selecting the template to modify. We extended the margins and inserted a new tab stop, then added the field from the Field Names dialog provided. We also had to add a column heading for the field, which we did by copying and reformatting the field specification we had inserted, and adding the code "L:" (for label) before its name. We saved the template under a new name, then selected it from the lookup by choosing Other on the Report menu.

* GoldMine 2.5a for Windows

GOOD

GoldMine provides many more pre-formatted reports than the other programs in this comparison, among them 31 activities-based reports, including appointments and call-back tasks; a text calendar listing by user; daily, weekly, and monthly sales forecasts; and completed activities by company or by user. Fifteen contact-based reports include directory listings, contacts with profiles, contacts with pending and notes, and phone lists. Eight Avery label formats for both primary and other contacts, and one Rolodex format, are also present.

GoldMine divides reports into four categories depending on the data source. Contact Listing reports contain information from the main contact screen; Scheduled Activities reports derive information from the calendar; History reports include one entry for each history record or completed activity; and Profile reports contain information from the supplementary file associated with the active database, including additional contacts, referrals, and profile entries.

Unlike the other programs reviewed here, GoldMine does not include a provision for creating custom reports. However, custom reports can be created with Crystal Report Writer, a third-party application that works with a number of other database programs.

Preparing a listing of contacts was a straightforward matter of selecting the report from a list of descriptions in the Report dialog. We could also sort the listing on two fields. We could output to a window, a file, or the current printer. For contact-based reports, we could also choose to print the current contact, a filtered list, or all contacts.

GoldMine let us modify several aspects of each report, including its description (which printed as the title); file name, primary, secondary, and tertiary sort fields; record selection expression (using a menu interface); and user name associated with the report.

More important are GoldMine's on-screen analysis reports of user performance. With these we could analyze contact record statistics, forecasted sales, completed activities, and leads for individual users or groups of users.

* Maximizer for Windows, Version 1.1

VERY GOOD

As it does with a number of other features, Maximizer handles reports uniquely. Label and envelope selections are treated not as reports but preferences, allowing each user to set personal defaults. Eight dot-matrix

label formats and six laser printer label formats are available, listed by dimensions rather than proprietary names or codes. Although named label formats would be easier to use, listing them by dimensions makes them more generally applicable.

We were able to print our calendar in the format currently on-screen--day, week, month, or bimonthly. Monthly and bimonthly views printed as text lists or charts; we could also set a range of dates, print a summary of the calendar, or print all details. We could include the name, address, and telephone numbers for each contact listed in the calendar.

Four kinds of predefined reports are included for the Clients, Contacts, and Hotlist windows: Column, Detailed, Name/Addr/Tel, and Notes. The Column report shows the information the same way it's displayed in the current window; customizing this type of report is as easy as arranging the on-screen layout.

Detailed reports could include Alternate Addresses, Appointments, Hotlist tasks, Categories, Contacts, Document summary, and Notes. Because histories are logged to Notes by default, this was the way we printed complete data on contacts.

The Name/Addr/Tel reports let us print basic contact information, and Notes reports printed the notes fields from any or all contacts.
We first set up our window to display the columns desired and changed the font used. The Column Reports dialog let us set the number of copies and the print quality, and it let us choose whether to suppress headings and print in a horizontal (row) or vertical (column) format. We could also choose between reporting on the current contact or all contacts.

We could print from the Categories, Documents, Notes, Journal, or Expenses windows. This last type is provided as a way of tracking work-related expenses and is not linked to specific clients as you might like it to be. On the other hand, you can set up multiple accounts, and track and report on the information contained in them.

* Sharkware Professional

GOOD

Sharkware handles labels, envelopes, and index cards either by shelling out to a DDE-linked word processor or using its own printing capabilities. The internal route offered seven Avery and six other label types and sizes, and six index cards including 3-by-5-inch and Rolodex.

Sharkware uses internal routines for more complete reporting as well. The Report menu provides 11 types, including a contact report; address book; daily, weekly, and monthly activities; and activity breakdowns including appointments, phone calls, to-dos, and detailed activity and call log reports. All are customizable to varying degrees, including printing to a large number of Day-Timer, DayRunner, Franklin, and other formats.

We found no way to preview most reports, however; only address books, daily, weekly, and monthly activities, as well as labels and envelopes, offer a preview button.

Preparing a complete contact report involved selecting our contacts, activities, and dates for both histories and activities.

A dialog box for selecting which fields to include was a button-click away.

From this dialog box, we could choose to include addresses, custom fields, phone numbers, and notes. We were also able to select different fonts, sizes, and styles for titles, headings, captions, and text.

Network access and group scheduling

* Act 2.0 for Windows
GOOD

You can install the stand-alone package on Novell NetWare, LANtastic, or Windows for Workgroups networks, and the program provides a wide range of installation options. A network pack is available with license and installation files and extra copies of the documentation ($799 for from licenses).

Once we installed the program and network pack on the server, we went to each workstation to set up a Window group and establish users' access rights. Running the INSTALL.EXE file in the server's Act directory from the workstation installed Act on the workstation.

Act's administrator utilities allow easy set. up of user and group database access rights regardless of whether the program is networked. This allows setting different access rights for multiple users on the same machine, which is useful if you share laptops among a number of salespeople, for example.

We were able to establish users at three security levels (administrator, standard, and browse) with optional passwords. To test user and group reporting, we set up several user groups.
Database maintenance features include capabilities for locking the entire database (for database backups or maintenance) and reindexing a contact database to improve performance. The program also lets you compact a database to recover disk space after deleting records.

Act provides database sharing by locking the databases on the level of individual records. This allows users to simultaneously edit different records in the same database, though not the same record.

Act provides an internal E-mail system as well as interfaces to Microsoft Mail and Lotus cc:Mail. Address books from other mail systems were accessible, and files and contact records could be attached to messages. Act has no group scheduling capabilities.

* GoldMine 2.5a for Windows

EXCELLENT

Our NetWare configuration required minor adjustments prior to installing GoldMine on the server. GoldMine can also be set up on a LANtastic or Windows for Workgroups network.
For our setup, the adjustments included creating a GoldMine user group and mapping to an installation directory. We also had to configure the number of file handles and SHARE.EXE parameters on the workstations.

After that, we were able to install the program just as if it were a stand-alone application, after which we set trustee directory rights and file attributes on the resultant directories and files. The final step was to add the GoldMine icons to each workstation's Windows Program Manager.

We accessed administrative functions from two commands on the File menu:

Configure GoldMine let us manage users and groups, among other things; Maintain Data Files let us reindex, repack, and rebuild the contact database. We could set up multiple users even on a stand-alone installation and assign them passwords and very detailed access and editing rights.

The program provides record-level locking, which allows simultaneous editing of different records in the same database.

Group scheduling and delegation of activities can be accomplished using the Other Users button in the scheduling window. We were able to select from among the other users set up in the program, scan each one's calendar for available time slots, and send copies of the activity to them. We could also set the program to notify the recipient and to RSVP our own calendar and histories upon completion or deletion. However, conflict checking did not work for activities sent to other users.

We could use GoldMine's internal E-mail system or rely on Lotus' Vendor Independent Messaging or Microsoft Mail as alternate mail systems. If we chose one of the latter, we had access to their address books. The internal system provided options for attaching threads and marking activities as completed when replying to a message. Other options include linking a current E-mail message to contacts and sending carbon copies to other users.

* Maximizer for Windows, Version 1.2

GOOD

According to the documentation, Maximizer runs on any Windows-compatible LAN. The installation on our NetWare server was the same as for a stand-alone setup, but we included the network setup files at the Setup Options dialog. We also accepted the proposed change to our AUTOEXEC .BAT e to load SHARE.EXE.
Workstation setup was similarly effortless: From Program Manager, we chose File/Run, and specified F:

MAX WIN

SETUP, the name and location of the installation routine on the server. The installation routine checked for SHARE.EXE and installed MAXWIN.INI and MAXEDIT.INI on the workstation, and added a Maximizer program group and icons.

Administrative functions are available in the Preferences dialog, where we were able to set up multiple users even on stand-alone systems. We could also assign detailed access rights and passwords.

By default, you are assigned Master rights (access to all program features and databases).

Maximizer uses item-level locking, which allows simultaneous editing of individual records; only when two users attempt to access the same field is the second user locked out.

Group scheduling was a breeze. We were able to check and correlate selected users automatically for free time, schedule the appointment, and effortlessly send it to each user's calendar. When we scheduled a conflict on another user's calendar, we were notified immediately.

The groupware features would have been enhanced by an E-mail interface, but

none was provided.

* Sharkware Professional

POOR

While Sharkware provides an interface to existing Messaging API-compliant E-mail systems, it does not allow simultaneous access to databases or to the program itself. The program does not provide group scheduling features, nor were we able to set up multiple users for a stand-alone installation.

HOW WE TESTED

We evaluated four Windows contact managers: Symantec's Act 2.0, Elan Software's GoldMine 2.5a, Modatech's Maximizer 1.2, and CogniTech's Sharkware Professional. Our test plan was loosely modeled on the contact management needs of a clothing manufacturer's marketing department.
We tested the packages on a 66-MHz 486-based PC with 16MB of RAM and a 650MB SCSI hard drive, running Windows for Workgroups 3.11 and DOS 6.22. For network testing, we added a 20-MHz Northgate 386 server running NetWare 3.12 and another 66-MHz 486-based PC with 16MB of RAM as a workstation running Windows for Workgroups.

PERFORMANCE

Installation and configuration

This task addressed the convenience and flexibility provided by each program in getting up and running.

To achieve a score of satisfactory, the program had to provide an effective installation routine that offered a choice of drive, directory, preferences, and configuration options. The program had to import comma-delimited ASCII files. We awarded extra points to programs with uninstall features, some level of password protection, and features making it easier to configure the application exactly as desired or to select among built-in or saved display modes or configurations. We also gave extra points if a program provided import filters for other database, contact manager, or personal information manager file formats.
Record management

In this category we looked at whether the program provided sufficient data fields for both sales and supplier contact records, and at the degree of control over defining data fields, layouts, and groups of contacts.

To achieve a score of satisfactory, a program had to provide at least 12 data fields, including fields for name, company, title, one address, and at least two telephone numbers. In addition, the program had to offer at least a few user-labeled fields. Programs scored higher if they let us change the layout or view of data fields. Some group-assignment feature had to be present.

We awarded bonus points if a program provided user-definable fields. For a top score, a program had to provide all of the preceding features as well as built-in or custom fields to track and total users' sales and expenses.

Searching and analysis

Helping users find contacts in the database is one of the most important capabilities of these products. To achieve a score of satisfactory, a

program had to search the entire database to retrieve all records containing a specified character string. We awarded bonus points for support of field-delimited searching and the capability to use wild cards in search terms. We gave higher scores to programs that provided the user with some means for sorting retrieved records. Products earned top scores if they provided a full array of search tools, including multiple-field searching and sorting, wild-card searches, search catalogs, and Boolean operators.

Scheduling and contact history

To test how well each product handled scheduling, we set up two schedules of daily appointments and other events. We also tested to see how well the programs recorded events, such as phone calls and meetings, to a history.

To earn a score of satisfactory, the program had to let us retain and display a daily schedule of appointments, display activities attached to a particular contact, and set alarms for appointments. The program also had to provide an auto-dialer and a means of keeping a record of phone calls, appointments documents, and faxes.

For a score of good, the program had to provide prioritized to-do lists, weekly and monthly displays of schedules, and alarms for other actions.
We awarded extra points to programs providing features such as snooze alarms, time lines, and the capability to schedule recurring events. A program had to include all of these features plus fax scheduling capabilities to earn a score of excellent.

Document creation

We tested each product's capabilities for creating custom letters and merging contact information into them.

To earn a score of satisfactory, a program had to provide a means to create and use faxes and form letters and perform mail merge with contact records. Because these were all Windows programs, it was not essential that the word processor be a part of the program In fact, if a program was tightly integrate with a more powerful external word processor, it earned a higher score than a program supplied with a merely adequate internal word processor.

We gave extra points for strong document-formatting features, an included spelling checker, and extra preformatted style sheets Top scores went to programs that let us track documents with contact records.
Reporting

In this category, we rated the programs' tools for creating reports such as lists of contacts or phone-call histories.

To attain a score of satisfactory, a program had to provide a reasonable number of formats for printing all the data that can be stored in the contact manager.

We awarded bonus points to programs providing easy customization and a wide variety of reports--including mailing labels, rotary index cards, and daily and weekly calendars.

Network access and groupware capabilities

Network and groupware capabilities are increasingly important in workgroup

contact-management applications. This task tested features provided for network installation and use, as well as groupware capabilities.

For a score of satisfactory a program had to provide concurrent access by users to databases on a network server. We awarded extra points to programs that provided an interface for at least one E-mail system (an internal one, Lotus cc:Mail, or Microsoft Mail) and group-scheduling capabilities. We also gave higher scores to programs that provided network administration capabilities such as assigning access rights and compacting or reindexing the database. Bonus points were awarded for easy and flexible network installation, group-schedule conflict checking task-delegation capabilities, and RSVP capability.

SUPPORT PRICING

Documentation

Documentation scores reflect the quantity and quality of both printed and on-line information. We awarded extra points for a quick-reference card and a written tutorial. We also increased the score for hypertext-linked and well-indexed on-line help. Poor organization, missing information, or an incomplete index lowered the score.

Support

Support is divided into two areas: support policies and technical support. In scoring support policies, unlimited free support earned a satisfactory score. We gave bonus points for extended warranties, money-back guarantees, a toll-free line, and corporate extended support. We subtracted points when vendors provided only limited support. Technical support scores are based on the quality of service we received during multiple anonymous calls to the vendor and the availability of knowledgeable technicians.

Pricing

The pricing scores take into account the prices of competing products and the intended market for software of this kind. The score in this category is not a reflection of the product's overall value.

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A METHOD AND APPARATUS FOR NETWORK-BASED SALES FORCE MANAGEMENT
**APPAREIL ET PROCEDE DESTINES A LA GESTION DE LA FORCE DE VENTE SUR LA BASE
  D'UN RESEAU**
Patent Applicant/Assignee:
  UPSHOT CORPORATION,
  RAFFEL Keith,
  SCHULMAN Robert M,
  BAKER Dixie E,
  CURRIE Robert E,
  CURRIE Christine,
Inventor(s):
  RAFFEL Keith,
  SCHULMAN Robert M,
  BAKER Dixie E,
  CURRIE Robert E,
  CURRIE Christine,
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English Abstract
  A method and apparatus for network-based sales force automation are
  provided that meet objectives of increasing sales and marketing
  efficiency and efficiency of technical and customer support by providing
  multi-dimensional displays of transactional information to users.
  Transactional information of deals,**contacts** , accounts, and leads is
  provided over the Internet using a Web browser. The information of
  related transactions is electronically linked, and the transactional
  information is electronically searchable using custom**profiles** . The
  transactional information is accessed and shared among host organization
  members according to a hierarchy and predefined territories. A Radar
  Screen Opportunity Display (RSOD) may be selected on which deal objects
  are displayed that represent the stages in a sales pipeline of
  corresponding deals. New business information may be selected, wherein
automaticnotification is provided of new information and changed
  information relating to transactions, wherein the new business
  information comprises information on at least one monitored customer Web
  site. A communication capability is provided that comprises electronic
  mail, facsimile, telephones, and paging devices, wherein communication is
  automaticallyestablished using transactional information.

French Abstract
  L'invention concerne un procede et un appareil destines a

l'automatisation de la force de vente basee sur un reseau et dont les
objectifs sont d'augmenter les ventes et l'efficacite du marketing ainsi
que celle du service technique et du service clients, et ce grace a
l'affichage pluridimensionnel d'informations transactionnelles aux
utilisateurs. Les informations transactionnelles concernant des
transactions, des contacts, des comptes et des pistes de clients
eventuels sont communiquees par Internet au moyen d'un navigateur du Web.
Les informations portant sur les transactions liees sont mises en rapport
electroniquement, et l'on peut effectuer des recherches electroniques
dans ces informations transactionnelles en utilisant des profils
personnalises. Les informations transactionnelles sont accedees et
partagees parmi les membres d'une organisation hote conformement aux
regles de hierarchie et aux territoires predefinis. On peut selectionner
un ecran d'affichage d'opportunites du type "Radar Screen RSOD" sur
lequel sont affiches les objets d'une transaction representant les etapes
d'une filiere de vente de transactions correspondantes. On peut aussi
selectionner de nouvelles informations commerciales, alors qu'une
notification automatique se fait en rapport avec les informations
nouvelles et modifiees concernant des transactions; les nouvelles
informations commerciales comprennent des informations affichees sur au
moins un site Web client que l'on surveille. L'invention repose sur des
systemes de communication qui comprennent le courrier electronique, le
fax, le telephone et les dispositifs d'appel de personnes, la
communication s'etablissant automatiquement sur la base des informations
transactionnelles.

Detailed Description
A METHOD AND APPARATUS FOR NETWORK-BASED SALES FORCE
MANAGEMENT
RELATED APPLICATIONS
The present application is a continuation-in-part of United States Patent
Application Number 08/884,113, filed June 27,1997 and claims priority of
co-pending application Ser. No. 60/098,194 filed August 27, 1998.
FIELD OF THE INVENTION
The invention relates to the field of managing sales force information.
In particular, the invention relates to a method of providing
transactional data over a network to sales force members.

BACKGROUND OF THE INVENTION
In order to facilitate accurate decision making, it is desirable to be
able to
consider a maximum amount of available information in formulating a
decision. Maximizing the amount of available information, however, often
increases the difficulty of the decision making process, thereby reducing
the
accuracy of the corresponding decision. This is because the amount of
information to be presented, assin-dlated, and considered in the making
of business decisions can be significant in light of the current
information age.

Therefore, it is desirable to maximize the information presented to a
decision
maker while presenting the information in such a way as to be readily
understood by the decision maker.
One approach to presenting information is to present raw information
or statistics to a decision maker. This approach is generally not
preferred
because a large amount of time is expended by the decision maker in
assimilating and understanding the information. Furthermore, the decision
maker may not have the training or experience to correctly analyze the

information.

Another frequently used approach for presenting information is to organize the material for presentation using graphs and charts compiled from the information. Many different forms of graphs and charts have typically
been used, depending on the type of information to be presented. This approach can work well if the information is the type that is easily organized in
graph or chart form. Again, however, information presented in graphs and charts can be difficult for the decision maker to assimilate, particularly when information relevant to one event must be compared with information relevant to other events.

Often, when there is a need to compare information from numerous events or transactions, there is a requirement to look at the historical statistics of the transactions. When the historical statistics of the transaction are relevant, concurrent presentation of historical data of the same type and format as the current data is required. It becomes extremely difficult to display historical data concurrently with current data in the same format on the same display using traditional graphs and charts. One reason for this difficulty is the limited space available on typical charts and graphs. In considering the limited space, a characteristic of the current transactional data must be deleted to allow room for each relevant historical characteristic that is displayed. This is especially true in the areas of business transactions, customer information support, and
sales where there are large amounts of relevant data for each event, and historical event data are critical to efficient decision making by sales and marketing personnel.

Therefore, it is desirable for everyone in an organization, from the sales and support personnel to the chief executive officer, to be able to take a quick look at significant transaction data and make an efficient evaluation and determination as to the best potential business prospects to pursue or the most serious support problems to fix. Consequently, it is desirable to have an information presentation scheme to increase the efficient presentation of information in the general area of customer information management systems and contact management.

Another problem faced by many organizations in the current information age is that large amounts of information are frequently available regarding business transactions. However, as the members of the organization are mobile, particularly in a sales organization, it becomes problematic to get such large amounts of information into the hands of the individuals that need to act on the information. Furthermore, it becomes difficult to provide for
communication among members of the organization, communication that improves the effectiveness of the organization and the personnel. It is equally as difficult to provide for communication among members of the organization
and clients of the organization, something upon which survival of the organization may depend. Consequently, it is desirable to have an information provision scheme that is accessible by personnel from a number of locations.

SUMMARY
A method and apparatus for network-based sales force automation are provided herein. Transactional information of deals, **contacts** , accounts, and leads is provided over an Internet using a Web browser. The

information of related transactions is electronically linked, and the transactional information is electronically searchable using custom **profiles** . The transactional information is accessed and shared among host organization members according to a hierarchy and predefined territories. The transactional information may be **automatically** imported from and exported to other applications comprising Web sites, spreadsheets, databases, and **contact** managers. A Radar Screen TM Opportunity Display (RSOD) may be selected on which deal objects are displayed that represent the stages in a sales pipeline of corresponding deals.

The deals comprise sales deals, services to be performed, product defects, and calls by representatives. New business information may be selected, wherein automatic notification is provided of new information and changed information relating to transactions, wherein the new business information comprises information on at least one monitored customer Web site. Calendar and to-do information may be selected that is automatically linked with corresponding transactional information. A communication capability is provided that comprises electronic mail, facsimile, telephones, and paging devices, wherein communication is automatically established using transactional information. A record of the communication may be saved in a history file corresponding to the transaction.

These and other features, aspects, and advantages of the present invention will be apparent from the accompanying drawings and from the detailed description and appended claims which follow.

BRIEF DESCRIPTION OF THE DRAWINGS
The present invention is illustrated by way of example and not limitation in the figures of the accompanying drawings, in which like references indicate similar elements and in which.

Figure 1 is a structure of the Customer Information Management System (CIMS) environment of one embodiment of the present invention.

Figure 2 is a computer system using an embodiment of the present invention.

Figure 3 shows the client side, or user side, and server side components of the CIMS environment of an embodiment of the present invention.
Figure 4 is a flowchart of a method for managing transactional information of an embodiment of the present invention.

Figure 5 is an Administrator screen of an embodiment of the present invention.

Figure 6 is a New User form of an embodiment of the present invention.

Figure 7 shows the access rights to territories of an embodiment of the present invention.

Figure 8 is a Territory Administration screen of an embodiment of the present invention.

Figure 9 is a New Territories form of an embodiment of the present invention.

Figure 10 shows standard fields for Accounts of an embodiment of the present invention.

Figure 11 shows standard fields for Contacts of an embodiment of the present invention.
Figure 12 shows standard fields for Deals of an embodiment of the present invention.

Figure 13 shows a screen for customizing notifications about changes to Accounts,, Contacts, and Deals of an embodiment of the present invention.

Figure 14 shows the Deal fields to use in triggering notifications of an embodiment of the present invention.

Figure 15 shows a screen for designating appointments and to-do items used in triggering notifications in an embodiment of the present invention.

Figure 16 shows a main CIMS screen of an embodiment of the present invention.

Figure 17 shows the components of an Account List screen of an embodiment of the present invention.

Figure 18 shows the components of a New Accounts screen of an embodiment of the present invention.
Figure 19 shows the components of an Electronic Bulletin Board screen of an embodiment of the present invention.

Figure 20 shows the components of a New Message/New Reply screen of an embodiment of the present invention.

Figure 21 shows the components of a Search screen of an embodiment of the present invention.

Figure 22 shows the components of a Calendar screen of an embodiment of the present invention.

Figure 23 shows the components of a New Appointment screen of an embodiment of the present invention.

Figure 24 shows the components of the Contact List screen of an embodiment of the present invention.

Figure 25 shows the components of a New Contact screen of an embodiment of the present invention.

Figure 26 shows the components of a Deal List screen of an embodiment of the present invention.

Figure 27 shows the components of a New Deal screen of an embodiment of the present invention.

Figure 28 shows the components of a new leads screen of an embodiment of the present invention.

Figure 29 shows the components of the RSOD screen of an embodiment of the present invention.

Figure 30 shows an embodiment of a Radar ScreenTMOpportunity
Display (RSOD) implemented by the present invention.

Figure 31 shows a sample table of event characteristics upon which an
RSOD implementation is based in an embodiment of the present invention.

Figure 32 shows example scale and note information that may
accompany the RSOD of an embodiment of the present invention.

Figure 33 illustrates another embodiment of a RSOD implemented by
the present invention.
Figure 34 shows a sample table of event characteristics upon which an
RSOD implementation is based in an embodiment of the present invention.

Figure 35 shows a flow diagram for the operation of the Customer
Information Management System (CIMS) in an embodiment of the present
invention.

Figure 36 shows a sample detail page for an embodiment of the present
invention.

Figure 37 shows a summary of the differences between the three record
retrievable methods of an embodiment of the present invention.

Figure 38 shows the components of a Find screen of an embodiment of
the present invention.

Figure 39 shows the components of the Search screen of an embodiment
of the present invention.

Figure 40 shows the components of a profile screen of an embodiment of
the present invention.
Figure 41 shows the components of a To-Do List screen of an
embodiment of the present invention.

Figure 42 shows the components of a New To-Do screen of an
embodiment of the present invention.

Figure 43 shows the components of a New Information screen of an
embodiment of the present invention.

Figure 44 shows the components of a New Information Web Monitoring
Preferences screen of an embodiment of the present invention.

Figure 45 shows the components of a New Information/New Web Page
To Monitor screen of an embodiment of the present invention.

DETAILED DESCRIPTION
A method and an apparatus for network-based sales force automation
are provided in a Customer Information Management System (CIMS). The
CIMS makes a sales force more effective by managing, reporting on, and
analyzing the flow of information throughout a host organization and the
entire sales cycle. In the following description, for purposes of
explanation,
numerous specific details are set forth in order to provide a thorough
understanding of the present invention. It will be evident, however, to
one skilled in the art that the present invention may be practiced
without these specific details. In other instances, well-known structures
and devices are shown in block diagram form in order to avoid
unnecessarily obscuring the

present invention. While the CIMS is designed to support the basic information management needs of the host organization, the CIMS may be customized to meet the needs of specific organizations.

The CIMS of one embodiment provides a broad range of information management and automation functions. The CIMS provides a complete picture of all deals and leads in a sales pipeline, wherein deals are tracked in any form necessary for an organization to move the sales process forward,
from an overview to a complete deal history. The CIMS manages account information. A quick profile of each account is provided, including all related contacts and deals, as well as a complete history of all activity associated with each account. The CIMS stores and tracks shared and private contacts.

Contacts are easily linked to accounts and deals, and a history of all activities associated with any account is provided. As the CIMS is accessed by a client
using the World Wide Web (Web), communication with contacts may be made via electronic mail (e-mail) by clicking on the e-mail address of the contact.

The CIMS provides a Radar ScreenTMOpportunity Display (RSOD) that allows for visual tracking of the progress of deals through the sales pipeline.

Reports provide a 1-dgh-level summary and analysis of sales activities. The
CIMS informs users when new information has been added to the CIMS environment and when existing information has changed or been updated.

Furthermore, the CIMS monitors changes to Web pages that are designated for tracking. A communication function is provided that facilitates the sending of e-mail, facsimiles, quotes, and form letters to individuals and groups of
contacts and leads. Moreover, the CIMS provides a calendar function for scheduling meetings and appointments, wherein scheduled activities can be connected to related accounts, deals, and contacts. Action items, or to-do items, can be associated with related accounts, deals, and contacts,. thereby facilitating the coordination of deliverables related to deals in the sales pipeline. In addition to the aforementioned functions, the CIMS provides an organization electronic bulletin board and newsgroup.

Figure 1 is a structure of the Customer Information Management System (CIMS) environment 150 of an embodiment of the present invention. The CIMS is hosted on a server 152 that comprises a World Wide Web server, or Web server, or FITTP server. The CIMS server 152 may comprise multiple components, wherein the multiple components may be resident on different servers, but the embodiment is not so limited. The CIMS server 152 is coupled to a database 154. The server 152 controls, routes, and manages sales force information or customer information in the host organization. The server 152 is coupled to numerous user workstations 156 and 160 using an internet or intranet 158, but the embodiment is not so limited. The interactions with the CIMS 152, comprising those of end users 156, or members of the sales force, and administrators 160, are provided using a client Web browser. As such, only the Web browser and a Transmission Control Protocol/Internet Protocol
(TCP/IP)-based connection to the network hosting the CIMS are used to connect to the Web server which connects to the CIMS server 152. This

allows any authorized user to access the CIMS regardless of the location of the user -in the office, at home, on the road -- without the use of special client software.

A standard conventional web browser allows any authorized to access the CIMS. Consequently, communications among CIMS users 156 and 160 are routed through the server 152, which automatically keeps track of which users get access to which information.

Figure 2 is a computer system 100 using an embodiment of the present invention. The computer system 100 may comprise the user workstaiions, the system administrator workstations, and the CIMS server, but the embodiment
is not so limited. The computer system 100 comprises a bus 101, or other communications hardware and software, for communicating information, and a processor 109 coupled to the bus 101 for processing information. The processor 109 represents a central processing unit (CPU) having any type of
architecture. The computer system 100 further comprises a random access memory (RAM) or other dynamic storage device in main memory 104 coupled to the bus 101 for storing information and instructions to be executed by the processor 109. The computer system 100 further comprises a read only memory (ROM) 106, or other static storage device, coupled to the bus 101 for storing static information and instructions for the processor 109.

A data storage device 107, such as a magnetic disk or optical disk and a corresponding disk drive, is coupled to the bus 101. The computer system 100
may be coupled via the bus 101 to a display device 121 for displaying information to a user of the computer system 100. Display device 121 can include a frame buffer, specialized graphics rendering devices, a cathode ray tube (CRT), and a flat panel display, but the embodiment is not so limited. An alphanumeric input device 122, including alphanumeric and other keys, may
be coupled to the bus 101 for communicating information and command selections to the processor 109. Another type of user input device is a cursor control 123 comprising a mouse, a trackball, a pen, a touch screen, or cursor
direction keys for communicating direction information and command selections to the processor 109, and for controlling cursor movement on the display device 121.

In one embodiment, a hard copy device 124 is coupled to the bus 101 and is used for printing instructions, data, and other information on a medium such as paper, film, or similar types of media. Additionally, the computer system 100 can be coupled to a sound device for sound recording and playback
125. The computer system 100 can function as a terminal in a computer network, wherein the computer system 100 is a computer subsystem of a computer network, but the embodiment is not so limited. The computer system 100 may further include a video digitizing device 126. The video digitizing device 126 can be used to capture video images that can be transmitted to other computer systems coupled to the computer network.

Figure 3 shows the client side 156, or user side, and server side 152 components of the CIMS environment of an embodiment of the present invention. The client side 156 components comprise a Web browser 310 that accesses a Web page 312. The Web page 312 may comprise embedded forms 314 and data, but the embodiment is not so limited. The client side 156 components are coupled to the server side 152 components using an

internet or
intranet 158, but the embodiment is not so limited. The server side 152
components comprise, but are not limited to, a Web server 320 coupled to
a CIMS server 324 through a data store 322. The CIMS server 324 is
coupled to a
database 154. The Web server 320 comprises a server-side script 330 that
processes information and data from the Web browser 310. The server-side
script 330 stores data in the data store 322 for access by the CIMS
server 324.

The CIMS server 324 of one embodiment comprises an import agent 340, an
import template 342, and an import engine 344 that are used to
periodically access data from the data store 322, but the embodiment is
not so limited.

A method and apparatus for managing at least one transaction are
provided herein, wherein the method comprises providing shared
information regarding transactions. The transactions of one embodiment
comprise at least one deal, at least one contact, and at least one
account, but the embodiment is not so limited. The information regarding
the deals comprises summary deal information, detailed deal information,
a complete history of events associated with the deals, and automatic
access to a Web site of customers associated with
the deals. The information regarding the contacts comprises a history of
activities associated with the contacts, wherein con-ununication with a
representative of the contact is automatically established using the
information
regarding at least one contact. The information regarding the accounts
comprises sun-unary account information, detailed account information, a
complete history of events associated with the accounts, and automatic
access to a Web site of customers associated with the accounts.
Furthermore, the transaction may comprise at least one lead, wherein a
lead is an emerging business opportunity.

The information of related transactions is electronically linked within
the CIMS environment. The information regarding the transactions is
provided over a network comprising an Internet and an intranet, but the
embodiment is not so limited. The transactional information is provided
to a
client using a Web browser and Hypertext Markup Language (HTML) and a
protocol comprising Transmission Control Protocol/Internet Protocol
(TCP/IP), Hypertext Transfer Protocol (HTTP), and Simple Mail Transfer
Protocol (SMTP), but the embodiment is not so limited.

Figure 4 is a flowchart of a method for managing transactional
information of an embodiment of the present invention. Operation begins
at step 402, at which the CIMS environment is configured. Configuration
of the
CIMS comprises several steps. Users are registered to access the shared
information regarding at least one transaction using registration
information comprising at least one name, a title, at least one
electronic mail address, and at
least one telephone number. Furthermore, each user is assigned a log-in
identification and a password. The CIMS configuration further comprises
setting up at least one territory comprising groups of related accounts,
contacts,
and deals. The territories may be organized according to geographical
boundaries, account names, ranges of account names, account sizes, and
industry focus, but the embodiment is not so limited. The registered
users are assigned to the territories. The assignment comprises assigning

the user access to at least one territory as well as assigning one of a number of levels of access
rights to each user of each territory. As the information regarding the transaction is shared among sales force members according to a hierarchy and predefined territories, in one embodiment, . a territory assignment and the title of the user determines access to the transactional information of the territory, but the embodiment is not so limited.

Configuration of the CIMS environment further comprises inputting transactional information into the CIMS database. Furthermore, the transactional information may be imported from at least one other application comprising Web sites, spreadsheets, databases, and contact managers, but the
embodiment is not so limited. The importing comprises importing transactional information interactively through an end-user import system and
importing the shared information as a batch operation. The source data comprising at least one field is simultaneously mapped and imported into at least one file, wherein the file comprises information regarding the associated
transaction. Moreover, the CIMS may export transactional information to other applications. The importing and exporting may be performed automatically on a periodic basis, but the embodiment is not so limited.

Operation continues at step 404, at which a user may select a CIMS function. If no CIMS function is selected at step 404, operation ends. If a CIMS function is selected at step 404, operation continues at step 406, at which a determination is made whether the RSOD is selected for display. If the RSOD is selected for display, the CIMS provides the RSOD display to the requesting user, and operation continues at step 404. In providing the RSOD display to the user, at least one deal is determined for display. A deal object is generated
to display each corresponding deal. The RSOD displays the deal objects a determined distance from a central point on a display. The determined distance of the deal objects represents a related stage of a number of stages of the corresponding deals, wherein the central point of the display represents a final stage of the deal. The deal may comprise a sales deal, a service to be
performed, a product defect, and a call by a representative, but the embodiment is not so limited.

If the RSOD is not selected for display, operation continues at step 408, at which a determination is made whether new business information is selected for display. If the new business information is selected for display, the CIMS provides the new business information to the requesting user, and operation
continues at step 404. The new business information comprises new information and changed information on at least one monitored Web site or network site. More specifically, the new business information comprises an overview of changed information regarding at least one lead and at least one transaction, new appointments and action items and corresponding electronic links, and information regarding at least one new lead and at least one new transaction and corresponding electronic links. The monitored network site
comprises prespecified Web sites and Web pages associated with a corresponding transaction. In monitoring the Web sites, the World Wide Web
is automatically polled to search for changes to prespecified Web pages, wherein the automatic polling is conducted once per day at a prespecified time, but the embodiment is not so limited.

If the new business information is not selected for display, operation
continues at step 410, at which a determination is made whether account
information is selected for display. If the account information is
selected for display, the CIMS provides the account information to the
requesting user, and operation continues at step 404. If the account
information is not selected for display, operation continues at step 412,
at which a determination is made whether deal information is selected for
display. If the deal information is selected for display, the CIMS
provides the deal information to the requesting user, and operation
continues at step 404. If the deal information is not selected for
display, operation continues at step 414, at which a detern-dnation is
made whether contact information is selected for display. If the contact
information is selected for display, the CIMS provides the contact
information to the requesting user, and operation continues at step 404.

If the contact information is not selected for display, operation
continues at step 416, at which a determination is made whether calendar
information is selected for display. If the calendar information is
selected for display, the CIMS provides the calendar information to the
requesting user, and operation
continues at step 404. The calendar information comprises meetings and
appointments,, and the calendar information is automatically linked with
the
corresponding transactions, but the embodiment is not so limited. If the
calendar information is not selected for display, operation continues at
step 418, at which a determination is made whether to-do information is
selected for display. If the to-do information is selected for display,
the CIMS provides the to-do information to the requesting user, and
operation continues at step 404.

The to-do information is automatically linked with the corresponding
transactions, but the embodiment is not so limited.

If the to-do information is not selected for display, operation continues
at step 420, at which a determination is made whether report information
is selected for display. If the report information is selected for
display, the CIMS provides the report information to the requesting user,
and operation continues at step 404. The report information of one
embodiment comprises analytical
reports and informative reports about contacts, deals, accounts, and
appointments, but the embodiment is not so limited. If the report
information
is not selected for display, operation continues at step 422, at which a
determination is made whether a bulletin board/newsgroup is selected for
display. If the bulletin board/newsgroup is selected for display, the
ClMs provides the bulletin board/newsgroup to the requesting user, and
operation continues at step 404.

If the bulletin board /newsgroup is not selected for display, operation
continues at step 424,. at which a determination is made whether a CIMS
search is selected. If the CIMS search capability is selected, the CIMS
provides the associated search display to the requesting user, and
operation continues at
step 404. The CIMS of one embodiment provides three search devices to be
used in electronically searching and locating records of contacts, deals,
and accounts that match specified criteria, but the embodiment is not so
limited.

One search device uses profiles comprising predefined profiles and custom

profiles.

If the CIMS search is not selected, operation continues at step 426, at which a determination is made whether a communication capability is selected.

If the communication capability is selected, the CIMS provides the communication display to the requesting user, and operation continues at step 404. The communication capabilities of one embodiment comprise electronic mail, facsimile, telephones, and paging devices, but the embodiment is not so limited. Communication is automatically established using the aforementioned devices along with information regarding at least one transaction. A record of the communication may be saved in a history file corresponding to the transaction. If the communication capability is not selected, operation continues at step 404, at which a user may select a CIMS function.

The CIMS is configured and tailored for use in a host organization by a system administrator. As such, the system adrrdnistrator may customize the CIMS environment to meet the particular needs of the host organization.

Specifically, the system administrator defines CIMS database fields and attributes to match the structure of the using organization by incorporating all of the data -needed by the sales force. Furthermore, the system administrator may change the display order of data in each field, and may customize the names and numbers of deal stages including adding, deleting, and modifying deal stages to correspond to the way the sales force manages the sales pipeline.

Moreover, the system administrator registers CIMS users, creates territories, and assigns user access rights to the territories. The system administrator may generate shared profiles to combine or view information. Additionally, the system administrator may configure import templates to manually or automatically move data from external sources, such as a lead form on the Web site of the host organization, into the CIMS. The system administrator may customize the way users are informed about changes and new information via the New Information screen. The system administrator may administer and maintain the CIMS environment from anywhere the system administrator has access to a network connection, but the embodiment is not so limited.

Figure 5 is an Administrator screen 500 of an embodiment of the present invention. The Administrator screen 500 comprises a workspace 502, an icon bar 504, a title bar 506, system controls 508, a status bar 510, and an About Box 512, but the embodiment is not so limited. The title bar 506 appears at the top of the workspace 502 of one embodiment, and it contains a title indicating the name of the selected administrator module. Furthermore, the title bar 506 contains context-sensitive buttons 514 that apply to functions of the currently selected module. The workspace 502 is the central display of the screen 500, wherein the contents presented within the workspace 502 depend upon the currently accessed administrator-module. In one embodiment, there are seven administrator modules comprising New Information Custon-dzation, User Administration, Territory Administration, License Administration, Account Administration, Contact Administration, and Deal Administration, but the embodiment is not so limited. Depending upon the operation that is being performed, a list view may be presented of all of the items or entities in a particular module, such as a list of all users or all territories,

or a form view may be presented that shows detailed attributes of a specific item. The icon bar

504 at the left side of the screen 500 of one embodiment allows the administrator to select an administrator module, but the embodiment is not so limited. The modules are selected by clicking the corresponding icon.

A group of system controls 508 are displayed along with the Administrator screens 500 of one embodiment. The system controls 508 comprise a Help control 516, a Preference control 518, and a Logout control 520, but the embodiment is not so limited. Clicking the Help control 516 results in the presentation of context-sensitive help for the currently accessed module.

Clicking the Preference control 518 provides a Preference Screen which allows

the administrator to customize the CIMS. Clicking the Logout control 520 allows the administrator to terminate the CIMS session. Furthermore, the CIMS session may be terminated by exiting the Web browser or typing in a different Uniform Resource Locator (URL) in the address bar of the Web browser.

The status bar 510 in the lower left of the screen of one embodiment provides status information and helpful tips on the CIMS. The text in the status bar 510 changes as the cursor is moved over controls or hyperlinks.

Clicking the About Box 512 of one embodiment provides the administrator online access to information about technical support, copyrights, CIMS license agreements, and technology partners, but the embodiment is not so limited.

In order for users to access the CIMS system, they must be registered with the CIMS server, have the hardware and software needed to access the CIMS server using a Web browser, and have an assigned CIMS log-on identification and password. The CIMS system administrator is responsible for providing each authorized user with the aforementioned CIMS access items.

The system administrator uses a New User form to register authorized users with the CIMS server. Figure 6 is a New User form 600 of an embodiment of the present invention. The New User form 600 contains information about each authorized user comprising a first 602, middle 604, and last name 606 of the user, a user position title 608, an electronic mail address 610, a telephone number 612, a log-on identification 614, and a password 616.

Furthermore, the New User form comprises the territories 618 to which a particular user is assigned and a level 620 of information access that the user has for each territory.

The territorial configuration of the CIMS system provides a way to create groups of related accounts, contacts, and deals and to designate groups of users who have a responsibility to manage and track business taking place

within each territory. In one embodiment, system administrators have the ability to establish and maintain territory definitions and to determine access rights of users to the territories, but the embodiment is not so limited.

Territories are important in that they limit access to potentially sensitive deal

information. By setting up territories so that they reflect the way an organization does business and by assigning appropriate staff members to each territory, only those users who are authorized to do so will be able to view or change confidential information relating to a territory. Furthermore, territories can be used to aggregate accounts and deals for reporting, filtering, and
notification. For example, users may create profiles that show accounts, contacts,. or deals in specific territories. Moreover, a system administrator may
configure the CIMS to notify users every time there is new or changed information for accounts or deals that are located only in their territories. This enables the member of a particular sales team to focus on the information that is most critical to them.

Assigning users to territories in the CIMS system effects the access to deals and the notification of a user. Regarding deal access, only users who are assigned to a territory may create, view, change, report on, and delete deals associated with that territory, but the embodiment is not so limited. All users
can view all accounts and contacts no matter which territories they are assigned to, however, they cannot follow hyperlinks from an account or contact to a deal associated with a territory to which they do not have access. On CIMS system screens containing territory pull down menus, the list seen by each user will show only the names of territories with which that user is associated.

Regarding notification information, only users who are affiliated with a territory can be notified via the New Information screens about new accounts,, contacts, and deals in that territory.

Figure 7 shows the access rights to territories of an embodiment of the present invention. In one embodiment, the four levels of user access rights to territories comprise Territory Owner 702, Full Access 704, View Access 706, and No Access 708, but the embodiment is not so limited. In one embodiment each territory must be assigned an owner, and only one owner is allowed per territory. The Territory Owner has operational responsibility for deals and accounts assigned to their territory. Furthermore, the Territory Owner may create, view, modify, report on, and delete deals associated with their territory.

Moreover, the Territory Owner may create appointments and to-dos associated with deals in their territory.

A user having the Full Access level of rights may create, view, modify, report on, and delete deals associated with their territory. Furthermore, Full Access allows a user to create appointments and to-dos associated with the deals in their territory. A user having the View Access level of rights may view and report on deals associated with their territory. Furthermore, the View Access allows for the creation of appointments and to-dos associated with deals in their territory. The No Access level of rights prevents a user from viewing or reporting deals associated with the territory. Furthermore, a user assigned a No Access level of rights may not create appointments or to-dos associated with deals in the territory.
The system administrator is provided with many different ways to set up territories within the CIMS system. While the territories may be organized around traditional geographical boundaries such as North, South, East, and West, a system administrator may use territories to create many other types of account organizations. In many cases, a non-geographical arrangement may be most appropriate to suit the needs of

the CIMS host organization. Territories may be based on account name. This could be useful if the using organization is concentrating on several large customers, each of which has many different divisions that a sales team calls on simultaneously. Territories may be based on ranges of account names; for example one territory comprises account names beginning with the letters A-G, another territory comprises account names beginning with the letters H-P, and another territory comprises account names beginning with the letters O-Z. Furthermore, territories may be based on industry focus, such as banking and financial, entertainment, manufacturing, and travel, but the embodiment is not so limited. Moreover, territories may be based on account size.

Figure 8 is a Territory Administration screen 800 of an embodiment of the present invention. This screen 800 is displayed by clicking on the Territory icon 802 in the icon bar 504. The Territory Administration screen 800 lists all existing territories and their members arranged according to access rights. In one embodiment, new territories may be created by clicking on the New Territories button 804 in the upper left of the screen, but the embodiment is not so limited. Clicking on the New Territories button 804 causes a New Territories form to be displayed.

Figure 9 is a New Territories form 900 of an embodiment of the present invention. Upon display, entries may be made into the New Territories form 900 by the system adn-dnistrator, thereby defining a territory and the associated individual access authorized to the territory. Furthermore, the CIMS system allows information regarding existing territories to be edited by the system administrator.

A system administrator may tailor the way the CIMS stores and presents account, contact, and deal information to precisely support the way the hosting company does business. Figure 10 shows standard fields 1000 for Accounts of one embodiment of the present invention. In one embodiment, the Account Name field is required, but the embodiment is not so limited. The Territory field contains a list of values that the CIMS automatically constructs based on the territories currently defined by the system administrator, but the embodiment is not so limited. The Industry field is a list that is precalculated with a list of approximately 65 major industry types; the system administrator should review this list and modify the list as necessary to ensure that it includes industry categories suitable for the CIMS host organization.

Figure 11 shows standard fields 1100 for Contacts of one embodiment of the present invention. Contact name is the only required field, but the embodiment is not so limited. The Account and Territory fields contain lists of values that are automatically constructed by the CIMS based on the accounts and territories currently stored in the database, but the embodiment is not so limited.

Figure 12 shows standard fields 1200 for Deals of an embodiment of the present invention. In one embodiment, all of these fields are required except the Qualifications field, which may be used to store miscellaneous information about a deal, such as budgets, and expressions of product interest, but the embodiment is not so limited. The Account and Territory fields contain lists of values that are automatically constructed by the CIMS based on the current active accounts and territories stored in the

database, but the embodiment is not so limited. The Source and Rating fields are prepopulated with values that are appropriate across a wide range of businesses, but the embodiment is not so limited, and the system administrator should review these and modify them as necessary to make sure they are appropriate for the CIMS host organization.

Administrator Accounts, Contacts, and Deals screens may be used to make multiple types of changes to the corresponding CIMS tables, but the embodiment is not so limited. These changes comprise the following, but are not so limited: adding new fields and determining the data type of the added fields; renaming and changing other attributes of existing fields; inactivating existing fields other than system required fields; making existing fields or added fields into required fields; modifying built-in lists of values provided with certain fields of the standard tables, and specifying lists of values for defined fields; and, changing the order in which fields in Accounts, Contacts,, and Deals are displayed in both list view and form view.

Account, contact, and deal information and data may be imported into the CIMS of one embodiment of the present invention. Using the CIMS import capabilities, information and data may be imported that is already maintained in a corporate directory, address book, or contact manager into the CIMS.

Importing provides an easy way to initialize the CIMS database with data that
have already been collected. Data may be imported into the CIMS in two ways, interactively through the CIMS end user import system, or automatically as a batch operation that is set up by the system administrator.

Interactive imports provide a simple way to move data from an external source into the CIMS database and may be initiated at any time by a system administrator or a user. Automated import operations involve additional steps
that require coordination with outside processes and resources, but the embodiment is not so limited. Both types of import operations involve the same basic sequence of setting up an import template and then applying the template parameters to the import data records. The import template is set up within the CIMS to allow the CIMS to map the data contained in the source file
into the CIMS database. The CIMS then applies the template parameters to each record in the source file, wherein all source records that can be successfully translated into CIMS records are written to the CIMS database as specified by the associated template.

Several steps are followed in interactively importing data into the CIMS.

An existing template is selected for use or modified, or a new template is created. The name of the source file is then specified that contains the data to be imported into the CIMS. The fields read from the specified source file are then mapped to the corresponding fields in the CIMS database. It should be noted that the data from a single source file may be simultaneously imported to one, two, or all three CIMS tables, wherein the CIMS tables comprise Accounts, Contacts, and Deals. The user then fine tunes the way that the source data is imported into the CIMS database. The fine tuning comprises, but is not limited to, the following actions: specifying whether or not duplicate records contained in the source file will be posted to the CIMS database tables; specifying whether imported records should trigger new information notifications;

allowing the user to capture all of the data contained in the source file when there is not an appropriate target field in the CIMS in which to store the data; assigning imported accounts, contacts, or deals to a selected territory when a source field has not explicitly mapped to a territory field; and, selecting a deal source when importing information into the CIMS deal table and not explicitly mapping a source field to the deal source field.

In addition to the CIMS interactive import capability, the CIMS may be configured to import data from an external source automatically on a periodic basis. This feature may be used, for example, to automatically import data gathered via a Web page into the CIMS environment. Furthermore, it could be used to automate the import of data purchased from third party sources, such as market research vendors or credit bureaus. With reference to Figure 3, a discussion of an automated import process follows.

The process for an automated import operation comprises designating a data source into which raw data can be input. A script 330 or other process is constructed to format and process the raw data in preparation for importing into the CIMS server 324. The raw data is written to one or more files and copied to a predetermined location on the CIMS server 324. An agent polls the CIMS server 324 at a regular interval and passes the data to the CIMS import engine 340. The import engine 340 processes the source file and writes out data to the CIMS database 154 according to the mapping and other specifications encoded in the designated automatic import template 342. The source file is copied to an archive directory and a log file is written that contains a detailed
record of the results of the import operation. While this process for an automated import operation has been described with reference to specific steps,. the embodiment is not so limited.

The data source that is used to feed the automated import operation is typically a form 314 embedded on a Web page 312, however, it could be a data
feed purchased from a third party source, or a set of files periodically generated by a data warehouse, but the embodiment is not so limited. In order
to create an automated data gathering environment, the raw data gathered must be validated, filtered, and possibly transformed or restructured before it is provided to the CIMS environment for processing. The basic operations that should be performed before taking the data to be imported comprise data type checking, validity checking, and checking to make sure that values are entered for all required fields, but the embodiment is not so limited.

The processing script 330 may perform several functions, but the embodiment is not so limited. The processing script 330 may write individual records gathered from the data source into a file formatted to be imported into
the CIMS environment. Furthermore, the processing script 330 may add default values for required fields that are needed to generate CIMS records but that may be missing from the source data. Moreover, the processing script 330
may move the source file into the import data store 322. The functions performed by the processing script 330 may be handled in a variety of ways, but the embodiment is not so limited. All processing script functions may be performed on the client side 156 by a script attached to the Web page 312 containing the data entry form, or the functions may be performed by the form itself. Furthermore, the processing script

functions may be performed by a
server-side 152 script or other process. Moreover, the processing script
functions may be distributed among several processes that reside both on
the client side 156 and on the server side 152.

The processing script 330 periodically writes source data to the import
data store 322, which is a predetermined location to store files
containing data
related to automatic import operations. In one embodiment, each location
designated to store import source files is an import folder that is
hardwired to be in the same location as the CIMS files on the server 324,
but the embodiment is not so limited. The data store 322 comprises two
sub-folders created under the import folder that are used to store data
created during automatic import operations. A first sub-folder comprises
an archive that contains copies of source files that have been processed
by the CIMS import engine 344. These are maintained so that the results
of each import can be audited against the original sources. A second
sub-folder contains a log file for each source file that has been
processed. Using the copies of the source files and the log files
contained in the two sub-folders, the import process may be audited to
insure that the expected results are being produced.

The CIMS import agent 340 periodically polls the data store 322 and
presents any source files found at the time of polling to the import
engine 344 for processing. The frequency with which the import agent 340
polls the data store 322 may be set by the system administrator, but the
embodiment is not so limited. Furthermore, the system administrator
specifies the import template 342 to be used by the import engine 344
during automatic import processing, but the embodiment is not so limited.

Prior to deployment of the CIMS, the system administrator should
initialize and configure the CIMS environment to that of the host
organization.
While many functions of the CIMS may be customized, the New Business
notifications are of particular importance. The New Business
notifications are designed to help maximize the effectiveness of the host
organization sales force by highlighting important changes and additions
to the information stored in
the CIMS. By monitoring the changes posted in New Information, users can
see at a glance any new appointments and meetings that they have been
scheduled for and any to-do items that have been assigned to them.

Furthermore, the user may be notified regarding changes or additions to
Accounts, Contacts, and Deals in territories with which they are
associated and about changes to Web pages that the user has designated
the CIMS to monitor.

The CIMS allows the system administrator to customize the following, but
the embodiment is not so limited: customize the way the CIMS notifies
users about changes to Accounts, Contacts and Deals; customize the way
the CIMS notifies users about new appointments, meetings, and to-do
items; and, specify the
time at which the CIMS will search the Web for changes to monitored Web
pages.
Figure 13 shows a screen 1300 for customizing notifications about
changes to Accounts, Contacts, and Deals of an embodiment of the present
invention. This screen 1300 allows the system administrator to specify
exactly
which changes will trigger the CIMS to notify users regarding changes to
Accounts, Contacts, and Deals. In one embodiment, notifications about new

or changed Accounts, Contacts, and Deals data are only provided to users who have access to the territories which the new or changed data effects, but the
embodiment is not so limited. Using this screen the system administrator could, for example, notify both Territory Owners and members, or users who have either Full or View access to a territory, whenever a new account or deal is created, but only notify owners when deals or accounts are changed.

The system administrator can further customize when notifications about changes are generated by using a twist-down for Account 1302, Contact 1304, and Deal 1306 fields. Figure 14 shows the Deal fields 1402 to use in triggering notifications of one embodiment of the present invention. Figure 14 shows the screen from Figure 13 after the Deal fields have been twisted-down.
The settings 1404-1410 specify that territory owners will be notified about changes to deals only when the Stage 1404, Status 1406, Probability 1408, or Projected Closing Date 1410 of a corresponding deal are changed.

Figure 15 shows a screen for designating appointments and to-do items used in triggering notifications in an embodiment of the present invention. The system administrator specifies that both the creation and cancellation or modification of a calendar or to-do item should trigger notifications.

Furthermore, the system administrator may cause the CIMS to notify the originator of an appointment or a to-do item that a recipient has declined to attend a meeting or that an assigned to-do item has become overdue.

The CIMS server of one embodiment may be configured to automatically poll the Web to search for changes to Web pages that individual
users would like to monitor. If any Web pages have been designated for monitoring, the CIMS server will automatically poll those pages once per day, but the embodiment is not so limited. If any changes to the Web pages that a user is monitoring are detected, the user is notified via the New Information screen. By default the CIMS server of one embodiment is set to conduct the polling at 12:00 A.M. However, the polling time may be changed. In order to maxin-dze server performance and throughput, and to minimize contention for server resources, it is preferable to set the poll time to a period when the CIMS server activity should be at a minimum, but the embodiment is not so limited.

Upon completion of the registration of users and custon-tization of the CIMS environment, members of the host organization may begin using the CIMS. In one embodiment, there are several client requirements comprising minimum hardware, software, and network requirements that the user may meet in order to access the CIMS, but the embodiment is not so limited. A Transmission Control Protocol/Internet Protocol (TCP/IP) connection to the
host organization CIMS enviroru-nent is used in one embodiment, but the embodiment is not so limited. The TCP/IP connection may either be a direct connection via a Local Area Network (LAN) or a dial-up connection that will enable a user workstation to receive Web pages from the Web server installed on the CIMS server, but the embodiment is not so limited. The user may have a personal computer capable of running the Web browser, but the embodiment is not so limited. For example, Netscape Navigator or Communicator version 4.03 may be used as well as Microsoft Internet Explorer version 4.0 or higher versions, but the embodiment is

not so limited. The CIMS of one embodiment
is certified to ran and use Web browsers in either a Microsoft Windows
environment or a Microsoft Windows NT 4.0 workstation or server
environment, but the embodiment is not so limited. The user should also
have a URL to access the CIMS. Furthermore, the user should have an
assigned logon identification and a password.

An authorized user accesses the CIMS using a Web browser running on
their client computer. The client computer comprises a personal computer,
but the embodiment is not so limited. Upon authorized access to the Web
server of the host organization, a main CIMS screen will be presented to
the user. Figure 16 shows a main CIMS screen 1600 of an embodiment of the
present invention.

The main screen 1600 of one embodiment comprises a header 1602, a title
bar 1604, a workspace 1606, and an icon bar 1608, but the embodiment is
not so limited. The header 1602 displays the name of the host
organization, but the embodiment is not so limited. In one embodiment,
the header 1602 comprises
system controls comprising Help 1610, Import 1612, Find 1614, and Logout
1616 that are available on every screen, but the embodiment is not so
limited.

The title bar 1604 comprises the name of the current CIMS screen 1600.

Furthermore, the title bar 1604 comprises buttons 1618 or function icons
that change depending upon the function of the current screen, but the
embodiment is not so limited. The icon bar 1608 of one embodiment allows
a user to select a particular CIMS module for use. The CIMS of one
embodiment comprises nine modules, each of which is represented by a
module icon 1620 in the icon bar 1608, but the embodiment is not so
limited. Clicking on a module icon 1620 results in selection of the
corresponding CIMS module. The workspace 1606
comprises the presentation of CIMS information from a selected module in
both lists and forms, but the embodiment is not so limited.

Navigating around the CIMS user environment of one embodiment is
very much like navigating around a Web site, but the embodiment is not so
limited. To select or move to a particular CIMS module from the main CIMS
screen, click the corresponding icon in the icon bar. Hyperlinks are used
to instantly access information related to a particular item that the
user is
viewing, but the embodiment is not so limited. The hyperlinks of one
embodiment are indicated by underlines, but the embodiment is not so
limited.

The main CIMS List screen contains summary information about Accounts,
Contacts, and Deals, but the embodiment is not so limited. Complete
details are available for any item by clicking on the associated
hyperlink in the list.

For many detail screens, clicking on a Close button allows a user to
return to the list. A summary of details is available for any item by
clicking a twistdown button located next to or associated with the
corresponding item. Most items in the CIMS system may be edited or
deleted by clicking on an Edit icon
that appears along with or associated with individual entries, but the
embodiment is not so limited. Clicking on the Logout button allows a user
to exit the CIMS environment.

The CIMS system provides a user with the ability to enter and look at
their own information, information for Accounts, Contacts, and Deals with
which they are associated, as well as information of other members of the
host organization. New information is entered into the CIMS by clicking
on a New button on the right side of the title bar. Clicking on the left
half of the New button of one embodiment brings up a New Entry form for
the screen that the user is currently viewing. For example, if a user is
viewing the Account list, clicking on the left side of the New button
will bring up a New Account form.

Clicking on the right half of the New button brings up a menu that allows
a user to select the type of new entry that the user wants to add from
any screen.

Many New buttons are context sensitive. Clicking on, or selecting, this
contextsensitive New button allows a user to enter a new item that is
automatically linked to the item that the user is currently viewing. For
example, if a user is viewing details about an Account, clicking the
context-sensitive New button allows the user to create a new Deal record
that is linked to the account.

The CIMS system allows a user to sort list information by the values in a
column by clicking on the column heading of the column of interest. For
example, if a user wants to sort Accounts by industry, the user will
click on the Industry column heading. In one embodiment, there are three
ways to quickly locate information in the CIMS environment. As a first
method, a user may click a Find button to quickly locate all records in
Contacts, Deals, or Accounts that contain a certain word or string of
characters. The Find function searches the account name field, contact
first and last name fields, and deal description field. A user can select
a capability associated with the Find function to look in one or more of
the Accounts, Contacts, and Deals tables.

As a second method, a user may click a Search button to locate records
or entries that match specific criteria as specified by the user. Unlike
the Find function, Search applies only to the type of information that a
user is currently looking at, but the embodiment is not so limited. For
example, if a user clicks Search from a Deal screen, the user will only
search through Deals.

Furthermore, Search allows a user to be more specific than Find in that a
user can tell Search to look for values only in the particular fields in
which the user is interested. The result of a Search in Accounts,
Contacts, or Deals is a subset
of the table that shows only the records that match the users search
specification.

A third search method, Profiles, allows a user to be even more specific
than either Find or Search. For example, a user may create a profile that
shows all deals in the negotiation stage in the Western territory. Unlike
Find and Search, Profiles can be saved and used repeatedly. To use an
existing profile, a user clicks on a pull-down menu in the title bar.
This menu displays a list of currently defined profiles available to the
user. Clicking the Profile button on the Accounts, Contacts, or Deals
list screens allows for the creation of a new profile or the editing of
an existing profile. Created profiles may either be private to the
creating user or shared with other CIMS users.

As previously discussed, the CIMS system of one embodiment uses nine
major modules, but the embodiment is not so limited. The nine modules of

one
embodiment comprise, but are not limited to, the following: a New
Information module; a To-Do module; a Calendar module; an Account module;
a Contact module; a Deal module; a Radar ScreenTMmodule; a Reports
module;
and, a Bulletin Board/Newsgroup module. The New Information module
provides an instant overview of everything new and changed in the CIMS
environment of which the user should be aware. As such, links to new
appointments and to-do items that have been assigned to the user may be
seen.
Furthermore, links to new accounts, leads, and deals in the territory to
which the user is assigned may be seen. A user may be alerted when there
is new information on a Web site corresponding to an account to which the
user is associated. The To-Do module allows for the entry and tracking of
action items for a user and others in the host organization. Moreover,
the co-workers of a user may enter to-do items for the user. To-do items
may be associated with Accounts, Deals, and Contacts, thereby allowing a
user to instantly see all open
action items for each entry, but the embodiment is not so limited. The
Calendar module allows for the scheduling of meetings and appointments.

The Calendar may be used to view the schedule of the user and the
schedule of co-workers. Calendar events may be connected with Accounts,
Contacts, and Deals, thereby making it easy to get an overview of all
scheduled activity for each item.

The Accounts module allows for the management of account
information. A user can get summary account information or a detailed
view.

Furthermore, a user may see a complete history of all events associated
with a
particular customer. The Accounts module allows a user to see a Web site
associated with an account by clicking on the URL listed in the account
entry.

The Contacts module allows for easy tracking and communication with
important individuals. A user may enter private contacts information for
exclusive viewing and use by the user. Furthermore a user may share
contact information with others in the hosting organization. The CIMS
system allows a contact to be**automatically   dialed**by clicking on the
listed contact phone number.

The Deals module provides comprehensive information regarding all
deals in the sales pipeline. The Deals module provides information at
many levels of detail, from a quick overview to a complete history of
every contact appointment, and event associated with the deal.
Furthermore, Deals screens may be used to track leads that have been
entered into the CIMS.

The Radar Screen module provides the user with a graphic overview of
active deals and the location of the deals in the deal pipeline using a
Radar
ScreenTMOpportunity Display (RSOD). The RSOD allows a user to see at a
glance, how deals are progressing through the sales cycle. The Reports
module allows a user to analyze and summarize information stored in the
CIMS. The Bulletin Board/Newsgroup module provides an electronic bulletin
board for the posting of the latest news and developments within the host
organization.

The Bulletin Board/Newsgroup module may be used to distribute company announcements, maintain company policies, distribute forms, as well as allowing for communication between individuals of the host organization, but the embodiment is not so limited.

An account in the CIMS is an organization, such as a company or department in a company, with which a user is doing or hopes to do business.

Depending on how the system administrator sets up the CIMS, a user may track various account information comprising address, number of employees,
and annual revenue. Each account may have associated contacts,, or individuals within the organization with whom a user is working.

Furthermore, an account has associated deals or business opportunities. The deal is the primary organizing unit in the CIMS. Where accounts and contacts are used to track relatively static information about an organization and its
people, a deal tracks the dynamics of a business opportunity as it moves through the sales process. Moreover, an account may have associated to-do items,, appointments, and history. An account may represent several things in a selling model of the host organization. Examples of some things an account might represent include, but are not limited to: a physical site; a buying organization; and, a corporate organization. Accounts are managed through the Account List, which enables a user to display a list of accounts, edit existing accounts, and add new accounts to the list.

Figure 17 shows the components of an Account List screen of an embodiment of the present invention. The Account List screen components comprise, but are not limited to, the following: a New button; Show drop down menu; Records control; Search button; Communicate button; Profile button; Account List; Account List item twist-down; Account List sort arrows; and, an Edit icon. The New button is used to create a new lead, account, to-do
item, contact, appointment, or deal, using the New Leads screen, New Accounts screen, New To-Do screen, New Contact screen, New Appointment screen, or New Deals screen. Clicking on the "plus" sign allows for the creation of a new account. Moving a cursor anywhere over the button brings up a list of
all record types that may be created, wherein the desired option may be selected by the user. The Show drop down menu component allows the user to select a profile for use in determining which accounts are displayed in the account list. A user may select active accounts, inactive accounts, all accounts,
or any custom defined profile on the menu. A user may also create a new profile.

The Records control component allows a user to specify which accounts appear on the current page. This control appears only when there are more records than can be displayed on a single page, but the embodiment is not so
limited. The number of items displayed per page may be set with the Preferences screen. For example, if the CIMS is set to display twenty items per page and a user.has fifty records, the user may use the records control to
display records 1-20, 21-40, or 41 The Search button component allows a user to search for accounts matching the criteria which the user can specify on the search screen.

The Communicate button component allows a user to display a
communications screen and initiate and establish communications with
contacts associated with the selected accounts. The communications
comprise
mail, facsimile, electronic mail, quote, labels, and envelopes, but the
embodiment is not so limited. A user may communicate with one contact or
many contacts at once. The Profile button component allows a user to
display the Account Profile screen. The Account Profile screen may be
used to create, view, edit and delete profiles. As previously discussed,
profiles are used to filter records so that a user may see only the
records in which the user is interested.

The Account List component allows a user to display accounts with
which they are associated according to the selection in the Show
drop-down menu. A user may sort the Account List by clicking on a column
heading and use the Account List sort arrows to determine the sort order.
Clicking on an Account List item twist-down allows for the display of
detailed information about the account. For even more detail, a user may
click on the underlined account name in the Account List. It should be
noted that if a list item contains an underlined e-mail address,
telephone number, or Web page address, a user may click on that hyperlink
to pop up an e-mail message screen to create and send a message, dial the
phone number with an auto dialer, or display the Web page. The edit icon
allows a user to edit or delete an account.

A New Accounts screen enables a user to create an account that will be
displayed on the account list. The New Account screen is displayed by
using the New button. Figure 18 shows the components of a New Accounts
screen of an embodiment of the present invention.

The CIMS electronic bulletin board and news group is a public
communications center that enables the discussion of topics or the
exchange of messages among co-workers who use the CIMS. The electronic
bulletin board may be used to post information about sales events or
awards, request help on a project, read company policies, discuss sales
techniques, or outline how to win against a competitor, but the
embodiment is not so limited. Key words may be used to search for
information on the electronic bulletin board. When a user enters the
electronic bulletin board, they are presented with a list of topics
currently being discussed. Responses to each topic are linked together so
that a user may read them sequentially and follow the flow of
conversation. A user
wishing to add to the conversation may do so by starting a new topic or
replying to an existing topic on the electronic bulletin boards screen.
Attachments may be added to electronic bulletin board messages, but the
embodiment is not so limited. It should be noted that a user wanting to
share information about a particular account, deal, or contact might do
so by creating
an event associated with that account, deal, or contact; in this way the
information will reside with the associated account.

The Electronic Bulletin Board screen of the CIMS enables a user to read
and participate in discussions among users of the CIMS. Figure 19 shows
the components of an Electronic Bulletin Board screen of an embodiment of
the present invention. A user may choose to display messages from the
past week, the past month, the past three months, the past six months,
the past nine months, or the past year, but the embodiment is not so
limited. The Search button is used to find a certain topic heading or
word within the body of a message.

A New Message/New Reply screen enables a user to create and reply to topics being discussed among users of the CIMS. Figure 20 shows the components of a New Message/New Reply screen of an embodiment of the present invention. A Search screen enables a user to search for topics or messages that contain a certain word or part of a word. Figure 21 shows the components of a Search screen of an embodiment of the present invention.

The CIMS Calendar module provides for displays of lists of appointments and meetings that a user has called or in which a user has agreed to participate. The appointments may be viewed in day, week, or month views, but the embodiment is not so limited. An appointment is different than a to-do item which is managed through the to-do list, but the embodiment is not so limited. An appointment has a specific duration, such as 9:00 a.m. to 11:00 a.m.: for example, a meeting or conference call on Tuesday at 2:00 p.m. A to-do item has a due date and time associated with it, but is not otherwise dependent on specific events at specific times; for example, a call, quote, e-mail, or other task that must be completed by a certain time, but can actually be WO 00/13122 PCTIUS99/19766
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appointments and meetings that will appear on the calendars of their co- not so limited.

The Communicate module of the CIMS enables a user to create a mail merge letter, facsimile, quote, and e-mail addressed to contacts of the user, but the embodiment is not so limited. Furthermore, the Communicate module enables a user to create labels and envelopes to contacts of the user. The communicate feature is available on any CIMS screen that displays or has associated contact information, such as the Contact List/Detail screens and the Account List/Detail screens. Communications may be with a single contact or many contacts at once. When transmission of a communication is complete, a record of the communication may be saved in the history of the deal, contact, or account. In one embodiment the Communicate module uses a mail merge feature to accomplish these tasks, but the embodiment is not so limited.

A CIMS contact is an individual with whom a user communicates, either in relation to a business opportunity or for personal reasons. Depending on the configuration of the CIMS, a user may track various contact information comprising address, title, phone numbers, and e-mail addresses. Regarding business contacts, one or more contacts may be associated with an account and each contact may be associated with one or more deals. The deal is the primary organizing unit in the CIMS. Where accounts and contacts are used to track relatively static information about an organization and its people, a deal tracks the dynamics of a business opportunity. A contact may also have associated to-do items, appointments and history. Furthermore a user may create a personal contact, wherein a personal contact is not associated with an account.

Personal contacts are displayed in a contact list of the creating user, but not in any other contact list. A personal contact will not be displayed as part of any account or deal information elsewhere in the CIMS. Therefore, only the creator of a personal contact may see the personal contact. Like a regular contact,, a personal contact may have

associated to-do items, appointments, and history.

Contacts are managed in the CIMS through the Contact List, which enables a user to display a list of contacts, edit existing contacts, and add new contacts to the list. Moreover, the Communicate button is available on the Contact List screen, wherein the Communicate button enables the sending of facsimiles, letters, and e-mail to contacts.

The Contacts List enables the user to display a list of their contacts,, add new contacts to the list, and edit existing contacts. Figure 24 shows the
components of the Contact List screen of an embodiment of the present invention. The New Contact screen enables the user to create a contact that will be displayed in the Contact List. The New Contact screen is displayed by
using the New button of the Contact List screen. Figure 25 shows the components of a New Contact screen of an embodiment of the present invention. Contacts may be edited, but the embodiment is not so limited.

A CIMS deal is a potential revenue opportunity. A user may track various deal information, comprising stage, deal size, source, projected close date, and close probability. A deal has an associated account and, optionally, one or more associated contacts, but the embodiment is not so limited. The deal is the primary organizing unit in the CIMS. Where accounts and contacts are used to track relatively static information about an organization and its people, a deal tracks the dynamics of a business opportunity. Furthermore a deal may have associated to-dos, appointments, and history. A CIMS lead is an emerging business opportunity. A lead is the first stage of a deal, a potential deal that has not been qualified. A deal is a potential revenue opportunity that has been qualified and is in the sales pipeline. The CIMS enables a user to enter leads on a New Leads screen, as this is the way typical organizations prefer to organize their sales cycle. A user may also enter leads from the New Deal screen or after entering a contact on the New Contacts screen.

After being entered, leads are managed from the Deal List screen, but the embodiment is not so limited. Deals are managed through the Deal List, which enables a user to display a list of deals, edit existing deals, and add new deals to the list. History keeps track of all events, such as calls and meetings, related to the deal. Information added to or changed in a deal is automatically recorded in the History. History is displayed on the detail screens of the deal itself and the account and contacts associated with a deal. Deal history may be used to get a quick overview of the activities related to a deal and to gain a more accurate picture of where it is in the sales pipeline.

The Deal List enables the user to display a list of their deals, add new deals to the list, and edit existing deals. Figure 26 shows the components of a
Deal List screen of an embodiment of the present invention. A New Deal screen enables the user to create a deal that will be displayed in the Deal List.

The New Deal screen is displayed by using the New button of the Deal List screen. Figure 27 shows the components of a New Deal screen of an embodiment of the present invention. A deal may be edited or deleted, but the embodiment is not so limited.

The CIMS provides the capability to export data to other applications.

The Contact List, Deal List, and Account List pages may have their data
exported as a text file with tab characters between the data fields, but
the
embodiment is not so limited. Any application that can read such a tab
delimited file, which includes most spreadsheets, databases, and contact
managers, may use data exported from the CIMS, but the embodiment is not
so
limited. The export format of one embodiment automatically converts the
CIMS source file into the tab delimited format and downloads it to a hard
disk
for use with another application. The export function of one embodiment
exports all fields in a table, not just the ones shown on a list screen,
but the embodiment is not so limited. However the records that are
exported may be limited by using the Show drop down menu.

Furthermore the CIMS provides for the importing of account, contact,
and deal information from other sources. Any data source that can be
exported as a tab, or delimited, file, which most spread sheets,
databases, and contact managers can do, can be imported into the CIMS,
but the embodiment is not so limited. The CIMS of one embodiment
automatically converts the source file and allows a user to specify where
the data should go in the CIMS, but the
embodiment is not so limited. A number of options may be selected when
importing data into the CIMS. There is an option to allow duplicate
records to be generated during the import. Another option causes
notifications of the imported records to be made on the new information
pages of affected co- WO 00/13122 PCTIUS99/19766
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pipeline. As many sales organizations center their selling process around
leads and deals, the CIMS provides a convenient shortcut to enter leads
for either an existing account or a new account. To enter a lead for a
new account,, a user clicks on the New button at the top of one of the
following screens: Deal List/Detail screen; Account List; Contact List;
or, To-Do List. Upon clicking on the New button a New Leads screen will
be displayed. If a user creates a new lead in this manner the following
will be created, but the embodiment is not so limited: a new deal; a new
account; and, optionally, a new contact. A user manages the new lead
through the Deal List. To enter a lead for an existing account, a user
clicks on the New Deal button on the Account Detail screen or in the
twisted down account detail on the Account List. Once leads have been
entered, they may be tracked and analyzed using any of the tools
available for deals, including reports and the radar screen. A New Leads
screen enables a user to create a lead that will be displayed on the Deal
List. Associated account and contact information for this lead will also
be displayed on the account list and contact list. Figure 28 shows the
components of a new leads screen of an embodiment of the present
invention.

The CIMS meets the objectives of increasing sales and marketing
efficiency by functioning to provide a multi-dimensional display of event
information to a user. Consequently, the CIMS uses the Radar ScreenTM
Opportunity Display (RSOD), so named because the display is a radar
metaphor. The CIMS uses the RSOD to provide a quick-look of the best
business prospects for pursuit by an individual or company. The RSOD
depicts business events and transactions in such a manner as to allow a
quick and accurate evaluation by the user. Thus, in one embodiment, this
radar-like presentation of data allows the user to see a visual
representation of the current state of one or more sales transactions.

The CIMS operates on data that is either received via user input or is received from a database containing information relevant to the events of a user company. With reference to Figure 2, when a database is used the database is hosted in a system memory 104 of the computer system. As data entered into the CIMS by a user is stored by the CIMS, all data used by the CIMS will hereinafter be referred to as being resident in the CIMS database.

These events can include, but are not limited to, sales deals, purchases, customer service cases, services to be performed, defect tracking, material issues, contact management, and contract progress. The CIMS utilizes the event data to generate corresponding event objects for display. The event data, or event characteristics as they will be referred to herein, are displayed in a graphical manner on the RSOD in the form of the corresponding event objects.

Each event object represents an event from the database. The RSOD is capable of displaying multiple event objects at one time representing multiple events from the database. The display characteristics of each event object are determined by the event characteristics of the corresponding event. The location of an event object on the RSOD is indicative of characteristics of corresponding events. The location is a multi-dimensional indicator in that it can be specified in terms of both a radial location from a specified point and in terms of sectors or coordinates. First, regarding radial location, an event object is displayed on the RSOD a determined distance from a particular reference point on the display. This particular reference point may be chosen by the user. Generally the particular reference point will be chosen to be, but is not limited to, the central point of the display. As business deals are typically referenced by stages in a pipeline or target dates, this reference point can represent, but is not limited to, some particular target stage or target date of an event. Therefore, the determined distance of an event object from the chosen RSOD reference point represents a related stage or date of the corresponding event. Using a sales deal event as an example, and making the RSOD central reference point representative of completion of the sales deal, the distance the event object is displayed from the central point indicates the proximity to completion of the sales deal. This proximity can be represented by a number of predefined stages away from completion of the deal, or alternatively, an estimated time period away from completion of the deal. Next, while radial location indicates a characteristic of an event, the sector or coordinate location of an event object may be indicative of a different characteristic of a corresponding event. The RSOD may be divided into numerous sectors or, alternatively, grids defined by some coordinate system.

Thus, the location of an event object in a particular sector or grid can be representative of some characteristic of a corresponding event. For example, the sector or grid in which an event object is located may identify the geographical area in which a corresponding event is located, or it may identify the personnel involved in the event, or the probability of event completion, or product line, or type of company, or type of problem.

As the location of an event object on the RSOD can indicate

temporallyrelated event characteristics, then the corresponding event objects can be animated to show the progression and regression of the corresponding events over time. The specified time period for animation can be selected by the user or may be set by the CIMS. Event objects will not obstruct other event objects.

An embodiment of the present invention uses the size, color, and shape of event objects to be indicative of characteristics of corresponding events.

Generally, the size of an event object will be chosen to be indicative of a measure of importance of a corresponding event. This measure of importance may be, but is not limited to, the amount of money involved in a corresponding event. For example, an event of interest may be a sales deal where the measure of importance is the monetary value of the sales deal, so the size of the
k
displayed event object would be in direct proportion to the monetary value of the sales deal. While the size of event objects is a quantitative attribute for continuous values, the color and shape of event objects is suited for discrete values.

The size, color, and shape of event objects will each be indicative of an individual characteristic of a corresponding event. These characteristics may include, but are not limited to, the personnel involved in an event, the level of priority of an event, the type of event, the geographical area in which an event is located,. the strategic importance of an event, a product line that is the subject of an event, event probability of completion, and an event with the highest probability of completion. For events related to customer support or defect tracking, these characteristics may also include the severity of a problem, the number of interactions with a customer, the number of instances of a problem, the support representative or team assigned to a problem, the type of problem, the type of customer, the product or product line, or the release version of a product.

In order to increase the number of event object variables so as to increase the number of event characteristics which may be displayed, the event objects may have variable fill patterns. For example, an event object may be displayed with a hollow center to represent a lost or failed event.

In order to further increase the number of event object variables so as to increase the number of event characteristics which may be displayed, the event objects may have tails. As with event object location, the event object tail is a multi-dimensional indicator of corresponding event characteristics in that the tail has a variable length and a variable pointing direction. For example, the direction in which the object tail points may indicate whether the event is progressing towards or regressing away from a specified date or stage while the length of the object tail may represent a speed at which the corresponding event is progressing or regressing relative to the specified date or stage.

Additionally, the object tail may contain tail end symbols or different types of tails which are indicative of a different characteristic of a corresponding event.

Preferably, the CIMS is configurable for individualized use so as to provide information relevant to a specific user's position in the company. In this way, the CIMS can provide a visual representation of data presented for a specific person, team, or region, as well as for the

entire company. Thus, for example, a sales person may viewl-lis individual deals displayed on the screen, while the chief executive officer or vice president of sales might see all deals of the entire company displayed on the screen. In this way, the CIMS can function to present event information so as to increase sales and marketing efficiency at all levels of a company. Also, a user can configure the CIMS to select event data based on any standard database queries including, but not limited to, monetary value, product line, time period, or other event characteristics. In addition, the event objects displayed on the RSOD provide electronic links to detail pages which contain detailed information relative to corresponding events.

Figure 29 shows the components of the RSOD screen of an embodiment of the present invention. The probability of closing of one embodiment is the estimated likelihood of a deal resulting in a sale, expressed as a percentage.

The days until dosing of one embodiment is the estimated number of days until a deal is expected to close; the closer the deal is to the center, the closer the projected closing date of the deal is to the date specified in the From date field.

The deal stages of one embodiment are the names used by the hosting organization to describe phases of their deal pipeline, such as lead, qualified, or closed.

Figure 30 shows an embodiment of a Radar ScreenTM Opportunity Display (RSOD) 3200 implemented by the present invention. The RSOD 3200 of this embodiment is circular in shape. The RSOD 3200 displays event objects 3221-3227 which correspond to events of the CIMS database or user input.
Figure 31 shows a sample table 3250 of event characteristics 3254-3262 upon which the RSOD 3200 implementation of Figure 30 is based in an embodiment of the present invention. The sample table 3250 contains event characteristics 3254-3262 for seven events 3270-3282 illustrated by example on the RSOD 3200.

The event characteristics 3254-3262 of this embodiment include, in addition to an event name 3252, five categories of event characteristics 3254-3262 relating to each event.

The data selected for presentation in Figure 31 is by way of representation, and the event name 3252 and event characteristics 3254-3262 are not lin-Lited to the type or amount of data shown. The CIMS may operate on any event characteristic that is selected for input into the database. As such, a CIMS database may receive and store a large number of event characteristics.

In contrast, the amount of data displayed on the RSOD is limited to the number of event object variables accommodated by the RSOD. Accordingly, an event object shown on an RSOD display will not generally be based on all information in the CIMS database corresponding to a particular event. The reason is that the CIMS database will generally contain more event characteristics corresponding to a particular event than the event object will have variable parameters. Therefore, the CIMS must limit the characteristic event data displayed corresponding to an event to the number of variable parameters of the corresponding event object.

The user of the CIMS has options as to the event data displayed by the RSOD in the form of the event objects. The user may choose to select characteristic event data for all corresponding event object variables. If the user elects not to select characteristic data to represent all event object variables, the CIMS will select the remaining characteristics using a default routine. If the user selects a number of characteristics for display that is less than the number of event object variables, then the CIMS may be configured to either cause the RSOD to display the event objects based just on the characteristics chosen by the user, or to cause the CIMS to select the remaining event characteristics to be displayed using the default routine. The default routine selection of characteristics could be based on a number of factors including, but not limited to, a prioritized list of default characteristics, or default characteristics most often selected by other users of the CIMS.

The event characteristics table 3250 of this embodiment presents event characteristics 3254-3262, by company name 3252, in five categories. These five categories correspond to company size 3254, event territory 3256, event completion date 3258, event stage as of the current date 3260, and event stage as of one month ago 3262. These event characteristics represent characteristics of the event or transaction with the particular named company 3252. The size characteristic 3254 presents the size of the event in dollar value. The territory characteristic 3256 presents the geographical location of the event. The completion date characteristic 3258 represents the anticipated date of completion of the event. The stage (Today) characteristic 3260 represents the stage of the deal as of the current date. The stage (1 month ago) characteristic 3262 represents the stage of the deal as of one month prior to the current date.

Figure 32 shows example scale and note information 3500 that may accompany the RSOD 3200 of an embodiment of the present invention. This scale and note information 3500 may be displayed along with the RSOD 3200, and provides the information necessary to interpret the event characteristics 3254-3262 from a graphical representation of the event data on the RSOD 3200.

This scale and note information 3400 will be used in the following description of the RSOD display 3200. As the event characteristics table 3250 contains five event characteristics 3254-3262 for representation on the RSOD 3200, five variables of the event objects will be controlled by these characteristics 32543262. The event object variables controlled in this embodiment include event object size, distance of event object from center of RSOD, event object tail length, direction that event object tail points, and quadrant location of event object. Each of these five event characteristics 3254-3262 is discussed below with regard to the example RSOD 3200 display.

The scale information 3510 of Figure 32 indicates that the event size data 3254 is related to the size of the event object 3221-3227 displayed on the RSOD 3200 by the relationship that 0.25 inches of event object diameter equals $50,000 in deal size. Using this example, the ABC Corporation event 3270 is represented by a 0.25 inch diameter event object 3221, the ACME event 3272 is represented by a 0.75 inch diameter event object 3222, the Widgets Inc. event 3274 is represented by a 1.25 inch diameter event object 3223, the XYZ Corporation event 3276 is represented by a 0.50 inch diameter event object 3224, the Tech Ltd. event 3278 is represented by a 1.0 inch

diameter event object 3225, the Zippy Co. event 3280 is represented by a 0.25 inch diameter event object 3226, and the Super Stuff event 3282 is represented by a 0.75 inch diameter event object 3227. The CIMS actually scales to pixels so that the resulting size of the event objects will vary by display device.

The scale information 3510 of Figure 32 indicates that 0.5 inches of distance from the RSOD center 3202 represents an estimated one month of lead time, or one month from the current date to the date of dosing. Using this example, the ABC Corporation event object 3221 is 0.25 inches from the RSOD
center 3202 representing one-half month until event completion, the Acme event object 3222 is 0.5 inches from the RSOD center 3202 representing one month until event completion, the Widgets Inc. event object 3223 is one inch from the RSOD center 3202 representing two months until completion, the XYZ Corp. event object 3224 is two inches from the RSOD center 3202 representing four months until completion, the Tech Ltd. event object 3225 is one and one
half inches from the RSOD center 3202 representing three months until completion, the Zippy Co. event object 3226 is two inches from the RSOD center 3202 representing four months until completion, and the Super Stuff
event object 3227 is one and one-half inches from the RSOD center 3202 representing three months until completion.

Generally, the information displayed by an event object tail is twodimensional. In this example, the direction in which the tail is pointing indicates qualitatively the direction from which the event has progressed or regressed. Furthermore, the scale information 3510 of Figure 32 indicates quantitative information in that one inch of tail represents one stage moved in the past month. The note information 3520 of Figure 32 indicates that stage 1 is the beginning stage and stage 5 is the target stage, such as getting a deal booked. Using this example, the ABC Corporation event object 3221 two-inch tail 3241 indicates that the ABC event 3270 progressed two stages in the past month, and tail 3241 direction indicates that the ABC event 3270 progressed towards a target stage. Regarding the Acme event 3272, the event object 3222 three-inch tail 3242 indicates that the Acme event 3272 progressed three stages in the past month towards a target stage. Regarding the Widgets Inc. event 3274, the absence of an event object 3223 tail indicates that the Widgets event 3274 did not progress or regress in the past month. Regarding the XYZ Corp.

event 3276, the event object 3224 one inch tail 3244 indicates that the XYZ event 3276 progressed one stage in the past month towards a target stage. Regarding the Tech Ltd. event 3278, the event object 3225 one inch tail 3245 indicates that the Tech event 3278 regressed one stage in the past month away from a target stage. Regarding the Zippy Co. event 3280, the absence of an event object 3226 tail indicates that the Zippy Co. event 3280 did not progress or regress in the past month. Regarding the Super Stuff event 3282, the event object 3227 two inch tail 3247 indicates that the Super Stuff event 3282 progressed two stages in the past month towards a target stage.

The sector information 3530 of Figure 32 indicates that the event objects 3221-3227 are organized in a quadrant 3206-3212 of the RSOD 3200 depending on the geographical location of the event. The quadrants are indicated by quadrant lines 3214. Accordingly, the Zippy Co. event 3280 and the Widgets Inc. event 3274 are in the northeast territory because the Zippy Co. event object

3226 and the Widgets Inc. event object 3223 are located in the top right
quadrant 3206 of the RSOD 3200. The ABC Corp. event 3270 and the Super
Stuff event 3282 are in the southeast territory because the ABC Corp.
event object 3221 and the Super Stuff event object 3227 are located in
the bottom right quadrant 3208 of the RSOD 3200. The Tech Ltd. event 3278
and the XYZ Corp.
event 3276 are in the southwest territory because the Tech Ltd. event
object
3225 and the XYZ Corp. event object 3224 are located in the bottom left
quadrant 3210 of the RSOD 3200. Finally, the Acme event 3272 is in the
northwest territory because the Acme event object 3222 is located in the
top left quadrant 3212 of the RSOD 3200.

Figure 33 shows another embodiment of a RSOD 3600 implemented by
the present invention. Figure 34 shows a sample table 3700 of event
characteristics upon which the RSOD 3600 implementation of Figure 33 is
based. The RSOD 3600 of this embodiment displays event object 3602 as an
event object with a hollow center. The hollow center of event object 3602
is indicative of a lost or failed event. The distance from the center of
the RSOD to event object 3602 indicates how close the event got to
completion before the loss or failure occurred.

Figure 35 shows a flow diagram for the operation of the Customer
Information Management System (CIMS) in an embodiment of the present
invention. Operation begins at step 3304, at which a user enters the
CIMS. The user selects an event from the CIMS database for display as a
event object on a
RSOD, at step 3306. The CIMS contains a computer database, or is
electronically linked to a computer database. This database contains a
record of all company contacts and interactions relating to company
events, deals, and transactions with client and customers. This flow
diagram presumes that event characteristic data have previously been
entered into the CIMS database. The RSOD provides a visual representation
of the events in a radar screen format.

In selecting an event from the CIMS for display on the RSOD, the user
may select specific events for display. For example, the user might want
to see
displayed the events of Company A, Company B, Company F, Company R,
Company Y, and Company Z. Alternatively, the user may specify events for
display on the basis of event characteristics. The event characteristics
on which display may be specified include any characteristics of an event
that are resident in the database or which are input by the user during a
particular CIMS session. For example, a salesperson user might want to
display pending sales deals of a certain type based on the dollar value
of the deals. Following selection of events for display by the user,
operation continues at step 3310. If the user does not select any events
for display, operation continues at step 3308.

If a user does not select any events from the CIMS database for display,
operation continues at step 3308, at which a built-in algorithm
determines the events for display on the RSOD. In the complete absence of
user input, the
algorithm may select events for display based on, but not limited to,,
predetermined event characteristics, event characteristics most often
requested in prior use by a particular user or group of users, or rate of
change of event characteristic trend data. This algorithm may also be
configured by the user or by a system administrator in order to display
certain events. For example, the user may specify a number or type of
event to be displayed, adjust the relative weight of the event

characteristics, or indicate which event characteristics should be taken into account in formulating a display.

Following selection of the events for display from the CIMS database, operation continues at step 3310, at which the user selects configuration options for RSOD event objects. The CIMS operates by formulating an event object for display based on corresponding event characteristics resident in the CIMS database or input by a user. The size, shape, color, location, and object
tail of each event object are determined by event characteristics of a corresponding event. As such, each of these event object attributes are indicative of the event characteristics selected by the user to represent these attributes. Each of these event object attributes will now be discussed.

The size of an event object on the RSOD generally represents, but is not limited to, the relative importance of the corresponding event. As such, the size of the event object represents the size of the potential deal, in revenue or units, or the strategic importance of the deal. The size of the transaction object may also represent the qualitative value of a particular event. In addition, size may represent the probability of closing a transaction, the expected value of a transaction, or the number of interactions with a customer. Event object size may also be used for tracking product defects, product types and releases, assigned representatives, and types of calls. In tracking product defects, event object size can be indicative of the size of the problem and to the number of other defects related to the same problem or same product.

The shape of an event object may be indicative any one of a number of qualitative characteristics of an event. The qualitative characteristics that may be represented by event object shape include, but are not limited to, the category of an event, the assigned company representative, the probability of completing an event, the strategic importance of an event, the product line being sold, the territory, the defects of a product, the industry in which a
company deals, and the ty
, pe of event (e.g., ongoing contract or a one-time
sale). The quantitative characteristics of an event that may be represented by event object shape include, but are not limited to, the priority of an event, the value of an event, the time to completion of an event, the size of a company, the size of an event, and the stage of an event. Event object shape may also be used for tracking product defects, product types and releases, and types of calls.

Thus, the shape of an event object may be indicative of any characteristic of the transaction found in the database.

The color of an event object may be indicative of any one of a number of qualitative characteristics of an event. The qualitative characteristics that may be represented by event object color include, but are not limited to, the category of an event, the assigned company representative, the probability of completing an event, the strategic importance of an event, the product line being sold, the territory, the industry in which a company deals, and the type
of event (e.g., ongoing contract or a one-time sale). The quantitative characteristics of an event that may be represented by event object color include, but are not limited to, the priority of an event, the value of an event, the time to completion of an event, the size of a company, the size of an event, and the stage of an event. As an example., the color of an event object may be red for an event having a highest level of

severity with regards to a particular characteristic, blue for an event having a medium level of severity with regards to the particular characteristic, and yellow for an event having a lowest level of severity with regards to the particular characteristic. Thus, the color of an event object may be indicative of any characteristic of the transaction found in the database.

The location of an event object on the RSOD is a multi-dimensional attribute because it is indicative of multiple characteristics of the corresponding event. As such, a radial location of an event object on the RSOD may represent one characteristic of a corresponding event while the sector or grid location of the event object may represent another characteristic of the transaction. For example, a radial location of an event object on the RSOD may represent the stage of a corresponding event, or the length of time a call has been open.

Additionally, a sector or grid location of the event object on the RSOD may represent the geographical location of the corresponding event. Regarding the radial location of an event object, generally a particular point on the RSOD will be chosen to represent a specific stage or date in the lineage of an event. As such, the radial location of an event relative to this particular point may represent the stage of a transaction. For example, in one embodiment the center of the screen is chosen to represent the completion date
of an event. The radial distance from the center of the RSOD is thus determined by the stage of the sales pipeline in which an event is currently found relative to a final or target stage. Examples of these discrete stages include, but are not limited to, raw lead, prospect, qualified prospect, field call required, decision pending, booked, shipped, accepted. Alternatively, the
radial distance from the center of the RSOD to an event object may be determined by the amount of time between the specified or target date of event completion and the current date. The radial location of an event object may also be determined by the probability of the transaction dosing. The CIMS will allow the user to enter pipeline stages or dates for the relative comparison, to choose between choices of stages or dates, or to make no selection of stages or dates in which case the CIMS has default stages and dates.

Regarding the sector location of an event object, the RSOD can be divided into sectors, and the sectors can be selected to represent an event characteristic. For example, the sectors can indicate the sales representative or
team which is responsible for an event, the category of the company, the strategic importance of the company, the product line, the product defects, type of call, the size of the company, or the stage of an event in the sales pipeline.

The sector representation, however, is not limited to the aforementioned event characteristics.

In addition to the aforementioned event object attributes, each event object may have an object tail. The event object tail is a multi-dimensional indicator of event characteristics. For example, the object tail may represent an aspect of the past history of a particular event. As the object tail has at least two variables, the direction in which the tail points and the tail length, the object tail may represent at least two event characteristics or, alternatively, one two-dimensional event characteristic.

In one embodiment of the present invention, the object tail represents the stage of a particular event relative to a specified stage by indicating the progression or regression of a corresponding event relative to the specified
stage. The progression/regression characteristic is a two-dimensional characteristic in that the event can be progressing, or moving towards a specified stage, or the event can be regressing, or moving away from a specified stage. The direction in which the object tail points indicates whether the event is progressing or regressing. The second dimension indicated by the
object tail is the associated speed at which the event is progressing or regressing. The length of the object tail indicates the speed at which the event is moving.

In another embodiment of the present invention, the object tail represents the progression or regression of a corresponding event relative to a specified date. In this embodiment, when the event is progressing towards a specified date, the tail of the event object points towards the particular point on the RSOD chosen to represent the specified date of interest. When the event is regressing away from a specified date, the tail of the event object points away from the particular point on the RSOD chosen to represent the specified date of interest. When the event is neither progressing nor regressing, there may be no tail displayed, or a particular type of tail might be displayed to indicate no change in the event. Event progression/regression can be measured by, but is not limited to, comparison to a relevant specified date, stage of event in a pipeline, or increase or decrease in the probability of event closing.

Additionally, the speed associated with the progression or regression of the event is represented by the length of the object tail. The speed can be measured relative to, but is not limited to, a specific date, the speed with which the event passes through a series of stages, by how quickly the probability of event closing fluctuates,, or how the time of event closing is adjusted. In order to be representative of speed, the tail length must be normalized relative to a standard. As an example, the tail length can be selected to be normalized relative to all events displayed on the RSOD. Also, the tail length can be normalized relative to some specified period of time (e.g., for the last month).

Furthermore, the tail length can be normalized between some particular type of deals of a specified number of deals, whether or not all of these deals are
displayed on the RSOD. The normalization standard may be selected by the CIMS user or by a CIMS algorithm.
As the CIMS can display event objects in a way indicative of the past history of a corresponding event, the CIMS may also animate the history of an
event. This animation is accomplished by replaying the movement on the RSOD of the event object as reflected by changes in the corresponding characters over a specified period of time. This replay allows the user to view a time history of the progression and regression of an event for a period of interest.

An event object display on the RSOD includes an object label. This label can be input by the user, selected by the user from a list of options supplied by
the CIMS, or generated by a default algorithm in the absence of a user selection. The object label displays an attribute of the object from the database.

Either the event object label or the event object itself may serve as an
electronic link to a detail page containing detailed information about
the particular event.

Figure 36 shows a sample detail page 3400 for an embodiment of the
present invention. A detail page for each event contains information
relating to the particular event. The detail page might include a record
of interactions or
contacts with the opportunity company. Furthermore, the detail page may
include a complete history of interactions with the opportunity company.

Moreover, the detail page could be accessed via an address on the
worldwide
web, or simply a page that displays information that is known within the
application about the event. The detail page 3400 of Figure 36 includes
as an example of the type of information that might be contained in a
detail page, but is not limited to, company name 3402, company address
3404, company phone
number 3406, industry in which company participates 3408, number of
employees 3410, revenue 3412, credit rating 3414, electronic (Internet)
address 3416, territory 3418, deal size 3420, expected closing date 3422,
and stage of the event as of a certain date 3424.

Following user selection of configuration options for RSOD transaction
objects at step 3310, operation continues at step 3312, at which a
built-in algorithm determines the event characteristics on which the
displayed event object size, shape, color, location, and object tail will
depend. If the user does not select any characteristics at step 3310 to
control the display, the algorithm will select all characteristics. If
the user selects some characteristics at step 3310, the algorithm will
select the remaining characteristics. If the user selects all
characteristics at step 3310 for control of the display, the algorithm
will not
select any characteristics and operation will continue at step 3314. As
previously discussed, this algorithm may also be configured by the user
in order to display certain events. For example, the user may specify a
number or
type of event to be displayed, adjust the relative weight of the event
characteristics to prioritize which event to display, or indicate which
event characteristics should be taken into account in formulating a
display.

Following step 3312, operation continues at step 3314, at which the
CIMS loads from a database all event characteristics required for
generation of
a RSOD of the corresponding events. As previously discussed, the
characteristics may be selected by a user or selected by the CIMS. The
CIMS
generates the event objects and displays the event objects on the RSOD
corresponding to an event, at step 3316. The event objects are displayed
according to the event characteristics selected to control the display.
At step 3318, at which a user views the event objects displayed by the
CIMS on the RSOD. Upon viewing the event objects, operation continues at
step 3320, at which the user may link from specific event objects to
corresponding event detail pages. When the user no longer wishes to view
a detail page, they may link back to the RSOD display.

Operation continues at step 3322, at which, upon viewing the event
objects of the RSOD, the user may wish to reconfigure the RSOD to display

different events,, or the user may wish to reconfigure the RSOD in order
to change the event characteristics depicted by the event objects. In
this case, operation continues by returning to step 3306 whereby the user
will have the configuration options as previously discussed. If the user
does not wish to reconfigure the RSOD after viewing it, operation
continues at step 3324, at which the user may link to and from
corresponding event detail pages so as to
gather information on corresponding events. Upon completion of an
information gathering session using the RSOD, the user exits the CIMS, at
step 3326.

As previously discussed, the CIMS of one embodiment uses three record
retrievable methods; Search, Find, and Profiles. Figure 37 shows a
summary of the differences between the three record retrievable methods
of an embodiment of the present invention.

The CIMS uses Find as a quick method of locating all records in CIMS
that contain a certain word or characters. Find searches the Account Name
field, contacts first and last name fields, and field description. Find
options
comprise an exact match, starts with match, and contains match. The Find
screen enables a search of the CIMS database for a record that contains a
specified character. Figure 38 shows the components of a Find screen of
an embodiment of the present invention.

The CIMS uses Search to locate records that match a certain set of
criteria. For example, on the Deal List screen, a user can search for all
deals of a certain size in a certain deal stage. The Search button
appears on the Account list, Contact list, and Deal list. When a user
selects the Search button a Search screen with the appropriate account, .
contact, or deal search fields displays.

Although the Search screen has different fields for each type of search,
all searches are performed in the same way: define the values wanted for
each field, determine the type of match wanted; and, dick a button to
begin the search. The search matches of one embodiment comprise exact
match, starts with match, and partial match. Following execution of the
search, the CIMS returns to the list screen from which the search was
started. The screen will display the results of the search and the Show
menu will be set to current search results. Figure 39 shows the
components of the Search screen of an embodiment of the present
invention.

The CIMS of one embodiment uses Profile to locate records that match a
certain set of criteria. The CIMS is provided with a predefined set of
profiles that may be used to located certain types of records. For
example, on the Contact List screen a user may select the Active Contacts
profile to display their active contacts only, or the user may select the
Personal Contacts profile to display their personal contacts. The user
may return to viewing all contacts by using the All Contacts profile. The
CIMS provides for the definition of custom profiles. For example, a new
profile can be defined that will locate all deals over $1,000,000 with a
30-60% chance of closing. The profile button appears on the Account List,
Contact List, and Deal List. Upon selection of the Profile button, a list
of custom profiles for the given record type is displayed.

This list may be used to edit or delete profiles. A new profile may be
created by clicking the New Profile button. New profiles are created by
naming the profile, entering a short description, selecting a profile
access (private or shared), defining selection criteria, and saving the

profile. Once created, a custom profile is displayed on the Show drop
down menu on the List screen.

Figure 40 shows the components of a profile screen of an embodiment of
the present invention.

Finding information in the CIMS differs from searching in that Finding
relies on simple matching in key fields. The CIMS Search feature should
be used if a user wants to search on fields other than the key fields
used by Find or if a user wants to search on multiple fields at one time.
Finding differs from Searching in that it can look up contacts, deals,
and accounts at the same time.

Searching works only on the records managed from the List screen from
which the search is accessed. For example, if a user starts Searching
from the Deal List, the Search will only be performed on Deal records.

Profiles differ from Finding and Searching in that Profiles allow for
more advanced selection criteria. For example, Profiles can do "greater
than" or "less than" comparisons. Furthermore, Profiles may be range
comparisons.

The Search of one embodiment is limited to exact match, contains,, and
starts with. In contrast, Profiles may do these comparisons and others.
Furthermore, Profiles differ from Searching in that Profiles may be saved
for future use.

The CIMS of one embodiment provides two types of reportsf
informational and analytical, for tracking and analyzing deals, accounts,
and contacts, but the embodiment is not so limited. Informational reports
are
designed primarily for hard copy printing, but the embodiment is not so
limited. The informational reports list available information, such as
Contact Lists, Deal Lists and To-Do items. The analytical reports are
designed to
answer pertinent questions, such as "How effective are our marketing
programs?" and "How well did leads move through the pipeline?"
The analytical reports are designed for on-screen use. Analytical reports
observe trends and pinpoint potential problems and improve areas in a
sales
process, but the embodiment is not so limited. Analytical reports may be
printed, but the embodiment is not so limited. Many analytical reports
present
summary information. For example, a user may want to know how many
deals were generated by a certain trade show. On the analytical report
the user might see an underlined number "27". This would indicate that 27
deals where generated by that trade show. Instead of listing every deal,
the user was presented with the summary level information. If the user
wishes to see more detailed information, then the user clicks on the
underlined number "27". The CIMS will then show a list of those 27 deals.
More detailed information may be presented for a particular deal by
clicking on that deal in the list.

The CIMS provides a predefined set of the most useful analytical and
informational reports, but the embodiment is not so limited. Furthermore,
the
CIMS provides the option to configure each report before it is run. For
example a user may request to see only contacts in Minnesota that only
deal
with a value of over $500,000 Report configurations may be saved for

reuse, but the embodiment is not so limited.

The analytical reports that follow are available in the CIMS,, but the embodiment is not so limited.

Marketing effectiveness: how effective are our marketing programs?
Average days: how long did it take for closed deals to move through the seller pipeline?
Deal stages: what stages are deals in?
Closing probabilities: what is the probability of deals dosing?
Historical snapshot: how many deals were in the seller pipeline?
Deal fallout: how many deals fell out at each stage?
Stage-to-stage analysis: within a period of time how long did it take for deals to move from one stage to another?
The informative reports that follow are provided by the CIMS,1 but the embodiment is not so limited.   °

To-do: to-do list.

Calendar: day view, week view, and month view.

Accounts: accounts list, account detail.

Contacts: contact list, contact detail.
Deals: pipeline summary, pipeline detail.

The CIMS To-Do List provides an overview of tasks that have been assigned by the user to the user or have been assigned by co-worker to a user.

The CIMS provides for tracking and updating of the status of the to-do item and the display of detailed information about the to-do item. The to-do items may be sorted by due date,. type., priority level, and other fields. The to-do
items are managed through the To-Do List, which enables a user to view, create, edit, and assign to-do items. To-do items may be marked as completed.

When to-do items are created by a user for co-workers, those items will automatically be updated in the CIMS database for the co-workers to-do on their To-Do Lists. The recipient of a to-do may also receive notification in the New Information screen, but the embodiment is not so limited. The progress of to-do items that have been assigned to others through a users own to-do list may be tracked, but the embodiment is not so limited.
Figure 41 shows the components of a To-Do List screen of an embodiment of the present invention.
A New To-Do screen of the CIMS provides for the creation of a new item for a to-do list. The to-do items may be created for a user or may be assigned to other users. The New To-Do screen is displayed upon selection of the View button. When creating a to-do item, it is important to associate it with an account, deal, and contact if the to-do item is to be displayed on the detailed view of Accounts, Contacts, or Deals.
Figure 42 shows the components of a
New To-Do screen of an embodiment of the present invention. To-Do List items may be edited or deleted, but the embodiment is not so limited.

A New Information screen provides a quick overview of new and updated information available in the CIMS system, such a change to an account or notification of a meeting, but the embodiment is not so

limited. The New
Information screen also provides for the monitoring of Web pages and the
notification of any changes to those Web pages. The selection of the New
Information screen for display instantly provides a summary of important
new or changed information that is pertinent to the user. In one
embodiment, items on the New Information screen are linked so that a user
can navigate quickly to
a specific piece of information. When a user is logged-in to the CIMS
environment, a New Information icon will flash if someone adds or changes
information that is of importance to the user. Clicking the New
Information icon allows the user to see, or access, the new or changed
information.

New Information items that have not yet been read are listed in bold
type, and items that have been read are listed in regular type, but the
embodiment is not so limited. New Information items may be selected for
reading by either clicking on the hyperlink associated with the item or
clicking the New Information item twist-downs. Items on the New
Information screen are divided into three main categories, but the
embodiment is not so limited.

new; changed; and overdue. Within these categories, items are broken down
by type: contacts; deals; accounts; to-dos; appointments; web pages; and
events. Sections will be collapsed or expanded by using the New
Information item twist-downs, but the embodiment is not so limited.
Figure 43 shows the
components of a New Information screen of an embodiment of the present
invention.

The New Information Web Mordtoring Preferences screen provides for
the specification of Web pages to be monitored. When a change occurs on a
monitored Web page, a user is notified on the New Information screen.
Figure
44 shows the components of a New Information Web Monitoring Preferences
screen of an embodiment of the present invention.

The New Information/New Web Page To Monitor screen enables the
specification of a page to monitor. The New Information/New Web Page To
Monitor screen is accessed from the Web Page Monitoring Preferences
screen.

Figure 45 shows the components of a New Information/New Web Page To
Monitor screen of an embodiment of the present invention. It should be
noted that a change is considered to be any text change on the specific
web page being monitored, but the embodiment is not so limited. A user
will not be notified of changes to pages linked to the monitored page.
When entering the LJRL, or Web address, of the page to be monitored for
changes, the monitored page may be a specific page when it accompanies a
home page. For example, a
user might not want to monitor www.widget.com (the home page), but the
user may want to monitor w-ww.widget.com/pressrelease.htmI (the page with
new press releases). Furthermore, if a URL is edited and the URL is
associated with an account, the URL in the associated account record will
be automatically updated. Moreover, the reverse is true, wherein if a URL
associated with an account is updated in an account record, the monitored
URL will also change.

Thus, a method and apparatus for network-based sales force automation
have been provided. Although the present invention has been described
with reference to specific exemplary embodiments, it will be evident that

modifications and changes may be made to these embodiments without
departing from the broader spirit and scope of the invention as set forth
in the claims. Accordingly, the specification and drawings are to be
regarded in an illustrative rather than a restrictive sense.

CLAIMS

Claim
1 A method for managing at least one transaction comprising the step of
providing shared information regarding the at least one transaction,
wherein the at least one transaction comprises at least one deal, at
least one contact, and
at least one account, wherein the information of related transactions is
electronically linked, wherein the information regarding the at least one
transaction is provided over an Internet.

2 The method of claim 1, wherein the information regarding the at least
one transaction is shared among sales force members according to a
hierarchy and predefined territories.

3 The method of claim 1, further comprising the steps of:
registering at least one user to access the shared information regarding
the at least one transaction, wherein the at least one user is registered
using registration information comprising at least one name, a title, at
least one electronic mail address, and at least one telephone number,
wherein the at least one user is assigned at least one log-in
identification and at least one password;
setting up at least one territory comprising groups of related accounts,
contacts, and deals; and
assigning the at least one user to the at least one territory.

4 The method of claim 3, wherein the step of setting up comprises:
organizing the at least one territory according to geographical
boundaries;
organizing the at least one territory according to account names;
organizing the at least one territory according to ranges of account
names;
organizing the at least one territory according to account sizes; and
organizing the at least one territory according to industry focus.

5 The method of claim 3, wherein the step of assigning comprises:
assigning the at least one user access to the at least one territory;
assigning one of a plurality of levels of access rights to each of the at
least one user for each of the at least one territory, wherein a
territory assignment and the title of the at least one user determines
access to the information regarding the at least one transaction.

6 The method of claim 1, further comprising the steps of:
exporting the shared information regarding the at least one transaction
to at least one other application; and
importing the shared information regarding the at least one transaction
from the at least one other application, wherein the at least one other
application comprises web sites, spreadsheets, databases, and contact
managers.

7 The method of claim 6, wherein the step of importing comprises
importing the shared information interactively through an end-user import
system and importing the shared information as a batch operation, wherein
source data comprising at least one field is simultaneously mapped and

imported into at least one file, wherein the at least one file comprises information regarding the at least one transaction.

8 The method of claim 6, wherein the steps of exporting and importing are performed automatically on a periodic basis.

9 The method of claim 1, further comprising the step of electronically searching the shared information regarding the at least one transaction, wherein at least one profile is used to locate records of at least one contact,, at least one deal, and at least one account that match a set of criteria.

10 The method of claim 1, further comprising the steps of:
determining at least one deal to be displayed;
generating for display at least one deal object corresponding to the at least one deal;
displaying the at least one deal object a determined distance from a central point on a display, wherein the determined distance of the at least one deal object represents a related stage of a plurality of stages of the at least one deal, the central point representing a final stage of the plurality of stages of the at least one deal.
11 The method of claim 10, wherein the at least one deal comprises a sales deal, a service to be performed, a product defect, and a can by a representative.

12 The method of claim 10, wherein a size and a color and a shape and a fill pattern of the at least one deal object are each indicative of at least one characteristic of the corresponding at least one deal.

13 The method of claim 10, wherein the at least one deal object is animated, the animation indicating the progression and regression of the corresponding at least one deal over a specified period of time.

14 The method of claim 10, wherein the at least one deal object comprises an object tail, wherein the length of the object tail and the direction of the object tail are each indicative of at least one characteristic of the corresponding at least one deal.

15 The method of claim 10, wherein the display is divided into a plurality of sectors, the location of the at least one deal object in a particular sector representative of at least one characteristic of the corresponding at least one deal.
16 The method of claim 10, wherein the at least one deal object provides an
electronic link to a detail page comprising information relating to the corresponding at least one deal.

17 The method of claim 1, further comprising the steps of:
providing information regarding at least one schedule, wherein the information regarding at least one schedule comprises meetings and appointments, wherein the information regarding at least one schedule is automatically linked with at least one corresponding transaction; and providing information regarding at least one action item, wherein the information regarding at least one action item is automatically linked with the at least one corresponding transaction.

18 The method of claim 1, further comprising the step of providing new business information, wherein the new business information comprises new information and changed information on at least one monitored network site.

19 The method of claim 18, wherein the at least one monitored network site comprises the prespecified web sites and web pages associated with the at least one transaction.
20 The method of claim 18, wherein the World Wide Web is automatically polled to search for changes to prespecified Web pages, wherein the automatic
polling is conducted once per day at a prespecified time

21 The method of claim 18, wherein the new business information comprises:
an overview of changed information regarding at least one lead and the at least one transaction;
new appointments and action items and corresponding electronic links; and
information regarding at least one new lead and at least one new transaction and corresponding electronic links.

22 The method of claim 1, further comprising the step of establishing communications, wherein the communications comprise electronic mail, facsimile, telephones, and paging devices, wherein at least one communication
is automatically established using information comprising information regarding at least one lead and the information regarding at least one transaction, wherein a record of the communication is saved in a history file of a corresponding at least one lead and a corresponding at least one transaction.

23 The method of claim 22, wherein at least one profile is used to select at least one addressee from the information regarding the at least one lead and the information regarding at least one transaction, wherein the at least one profile locates contacts, deals, and accounts that match at least one set of criteria, wherein the at least one profile comprises predefined profiles and custom profiles.

24 The method of claim 1, further comprising the steps of:
providing at least one search device to locate records of the at least one contact, the at least one deal, and the at least one account that match at least
one criteria;
providing an electronic bulletin board and news group; and
providing at least one report.

25 The method of claim 24, wherein the at least one report comprises analytical reports and informative reports about the at least one contact, the at least one deal, the at least one account, and at least one appointment.
26 The method of claim 1, wherein the information regarding the at least one transaction is provided using a web browser and Hypertext Markup Language (HTML) and a protocol comprising Transmission Control Protocol/Internet Protocol (TCP/IP), Hypertext Transfer Protocol (FITTP), and Simple Mail Transfer Protocol (SMTP).

27 The method of claim 1, wherein the information regarding the at least one transaction comprises at least one contact, a description, a projected dosing date, a stage,. a rating, a probability of closing, a territory, a source, and an estimated revenue.

28 The method of claim 1, wherein the information regarding the at least one deal comprises summary deal information, detailed deal information, a

complete history of events associated with the at least one deal, and automatic access to an internet web site of at least one customer associated with the at least one deal.

29 The method of claim 1. wherein the information regarding the at least one account comprises summary account information, detailed account information, a complete history of events associated with the at least one account, and automatic access to an internet web site of at least one customer associated with the at least one account.
30 The method of claim 1, wherein the information regarding at least one deal comprises a history of each contact, appointment., and event associated with the at least one deal, wherein communication with a representative of the at least one deal is automatically established using the information regarding at least one deal.

31 'Ihe method of claim 1, wherein the information regarding at least one contact comprises a history of activities associated with the at least one contact,, wherein communication with a representative of the at least one contact is automatically established using the information regarding at least one contact.

32 The method of claim 1, wherein the at least one transaction comprises at
least one lead, wherein the at least one lead is an emerging business opportunity.

33 A method for managing at least one transaction comprising the steps of:
providing shared information regarding the at least one transaction, wherein the at least one transaction comprises at least one deal,, at least one
contact, and at least one account, wherein the information of related transactions is electronically linked; and
providing new business information, wherein the new business information comprises changed information regarding the at least one deal, the at least one contact, and the at least one account, wherein the new business information comprises new information and changed information on at least one monitored network site, wherein the information regarding the at least one transaction and the new business information is provided over an internet using a protocol comprising Transmission Control Protocol/Internet Protocol (TCP/IP) and Hypertext Transfer Protocol (HTTP).

34 A method for managing at least one transaction comprising the steps of:
providing shared information regarding the at least one transaction, wherein the at least one transaction comprises at least one deal, at least one
contact,, and at least one account,, wherein the information of related transactions is electronically linked, wherein the information regarding the at
least one transaction is provided over an Internet; and
establishing communications, wherein at least one communication is automatically established over at least one communication medium using the information regarding the at least one transaction,, wherein a record of the
communication is saved in a history file of a corresponding at least one transaction.

35 A computer system comprising:

a display device;
a processor coupled to the display device, the processor configured to
provide shared information regarding at least one transaction, wherein
the at least one transaction comprises at least one deal, at least one
contact, and at
least one account,, wherein the information of related transactions is
electronically linked; and
an Internet coupled to the processor, wherein the information regarding
the at least one transaction is provided to a Web browser over the
Internet.

36 The system of claim 35, wherein the processor is further configured
to: register at least one user to access the shared information regarding
the at least one transaction, wherein the at least one user is registered
using registration information comprising at least one name, a title, at
least one electronic mail address, and at least one telephone number,
wherein the at least one user is assigned at least one log-in
identification and at least one password;
set up at least one territory comprising groups of related accounts,
contacts, and deals; and
assign the at least one user to the at least one territory.

37 The system of claim 36, wherein the set up comprises organizing the at
least one territory according to geographical boundaries, organizing the
at least one territory according to account names, organizing the at
least one territory according to ranges of account names, organizing the
at least one territory according to account sizes, and organizing the at
least one territory according to industry focus.

38 The system of claim 36, wherein the assigning comprises:
assigning the at least one user access to the at least one territory;
assigning one of a plurality of levels of access rights to each of the at
least one user for each of the at least one territory., wherein a
territory assignment and the title of the at least one user determines
access to the information regarding the at least one transaction.

39 The system of claim 35, wherein the processor is further configured
to: export the shared information regarding the at least one transaction
to at
least one other application; and
import the shared information regarding the at least one transaction
from the at least one other application, wherein the at least one other
application comprises web sites, spreadsheets, databases, and contact
managers, wherein the processor is configured to export and import
automatically on a periodic basis.

40 The system of claim 39, wherein the processor imports the shared
information interactively through an end-user import system and imports
the shared information as a batch operation, wherein source data
comprising at least one field is simultaneously mapped and imported into
at least one file, wherein the at least one file comprises information
regarding the at least one transaction.

41 The system of claim 35, wherein the processor is further configured to
electronically search the shared information regarding the at least one
transaction, wherein at least one profile is used to locate records of at
least one contact,, at least one deal, and at least one account that
match a set of criteria.
42 The system of claim 35, wherein the processor is further configured
to:

determine at least one deal to be displayed;
generate for display at least one deal object corresponding to the at least
one deal;
display the at least one deal object a determined distance from a central point on a display, wherein the determined distance of the at least one deal object represents a related stage of a plurality of stages of the at least one deal, the central point representing a final stage of the plurality of stages of the at least one deal.

43 The system of claim 42, wherein a size and a color and a shape and a fill pattern of the at least one deal object are each indicative of at least one characteristic of the corresponding at least one deal.

44 The system of claim 42, wherein the at least one deal object is animated, the animation indicating the progression and regression of the corresponding at least one deal over a specified period of time.

45 The system of claim 42, wherein the at least one deal object comprises an object tail, wherein the length of the object tail and the direction of the object tail are each indicative of at least one characteristic of the corresponding at least one deal.

46 The system of claim 42, wherein the display is divided into a plurality of sectors, the location of the at least one deal object in a particular sector representative of at least one characteristic of the corresponding at least one deal.

47 The system of claim 42, wherein the at least one deal object provides an
electronic link to a detail page comprising information relating to the corresponding at least one deal.

48 The system of claim 35, wherein the processor is further configured to:
provide information regarding at least one schedule, wherein the information regarding at least one schedule comprises meetings and appointments, wherein the information regarding at least one schedule is automatically linked with at least one corresponding transaction; and
provide information regarding at least one action item, wherein the information regarding at least one action item is automatically linked with the at least one corresponding transaction.
49 The system of claim 35, wherein the processor is further configured to provide new business information comprising new information and changed information on at least one monitored network site, wherein the at least one monitored network site comprises the prespecified web sites and web pages associated with the at least one transaction.

50 The system of claim 49, wherein the World Wide Web is automatically polled to search for changes to prespecified Web pages, wherein the automatic
polling is conducted once per day at a prespecified time

51 The system of claim 49, wherein the new business information comprises:
an overview of changed information regarding at least one lead and the at least one transaction;
new appointments and action items and corresponding electronic links; and
information regarding at least one new lead and at least one new

transaction and corresponding electronic links.

52 The system of claim 35, wherein the processor is further configured to establish communications using electronic mail, facsin-dle, telephones, and
paging devices, wherein at least one communication is automatically established using information comprising information regarding at least one lead and the information regarding at least one transaction, wherein a record of the communication is saved in a history file of a corresponding at least one lead and a corresponding at least one transaction.

53 The system of claim 52, wherein at least one profile is used to select at least one addressee from the information regarding the at least one lead and the information regarding at least one transaction, wherein the at least one profile locates contacts, deals, and accounts that match at least one set of criteria, wherein the at least one profile comprises predefined profiles and custom profiles.

54 The system of claim 35, wherein the processor is further configured to:
provide at least one search device to locate records of the at least one contact, the at least one deal', and the at least one account that match at least
one criteria;
provide an electronic bulletin board and news group; and
provide at least one report comprising analytical reports and informative reports about the at least one contact,, the at least one deal, the at least one account, and at least one appointment.

55 The system of claim 35, wherein the information regarding the at least one transaction is shared among sales force members according to a hierarchy and predefined territories.

56 The system of claim 35, wherein the information regarding the at least one transaction is provided using a web browser and Hypertext Markup Language (HTML) and a protocol comprising Transmission Control Protocol/Internet Protocol (TCP/IP), Hypertext Transfer Protocol (HTTP), and Simple Mail Transfer Protocol (SMTP).

57 The system of claim 35, wherein the information regarding the at least one transaction comprises at least one contact, a description, a projected closing date, a stage, a rating, a probability of closing, a territory, a source, and an estimated revenue.

58 The system of claim 35, wherein the information regarding the at least one deal comprises summary deal information, detailed deal information, a history of events associated with the at least one deal, and automatic access to an internet web site of at least one client associated with the at least one deal.

59 The system of claim 35, wherein the information regarding the at least one account comprises sunu-nary account information, detailed account information, a complete history of events associated with the at least one account,, and automatic access to an internet web site of at least one customer associated with the at least one account.

60 The system of claim 35, wherein the information regarding at least one deal comprises a history of each contact, appointment., and event associated with the at least one deal, wherein communication with a

representative of the at least one deal is automatically established using the information regarding at least one deal.

61 The system of claim 35, wherein the information regarding at least one contact comprises a history of activities associated with the at least one contact, wherein communication with a representative of the at least one contact is automatically established using the information regarding at least one contact.

62 A system for managing sales force information, the system comprising: shared information regarding at least one transaction, wherein the at least one transaction comprises at least one deal, at least one contact, and at least one account, wherein the shared information is shared according to a
hierarchy and predefined territories;
at least one electronic link among related transactions;
an Internet coupled to the system, wherein the information regarding the at least one transaction is provided to a web browser using the Internet.

63 The system of claim 62, wherein the system is further configured to:
register at least one user to access the shared information regarding the at least one transaction, wherein the at least one user is registered using registration information comprising at least one name,, a title,. at least one electronic mail address, and at least one telephone number, wherein the at least one user is assigned at least one log-in identification and at least one password;
set up at least one territory comprising groups of related accounts, contacts, and deals; and
assign the at least one user to the at least one territory, wherein the assigning comprises assigning one of a plurality of levels of access rights to each of the at least one user for each of the at least one territory, wherein a territory assignment and the title of the at least one user determines access to the information regarding the at least one transaction.

64 The system of claim 62, wherein the system is further configured to:
export the shared information regarding the at least one transaction to at
least one other application; and
import the shared information regarding the at least one transaction from the at least one other application, wherein the at least one other application comprises web sites, spreadsheets, databases,, and contact managers, wherein the processor is configured to export and import automatically on a periodic basis.

65 The system of claim 62, wherein the system is further configured to:
determine at least one deal to be displayed;
generate for display at least one deal object corresponding to the at least
one deal;
display the at least one deal object a determined distance from a central point on a display, wherein the determined distance of the at least one deal object represents a related stage of a plurality of stages of the at least one deal, the central point representing a final stage of the plurality of stages of the at least one deal, wherein a size and a color and a shape and a fill pattern of the at least one deal object are each indicative of at least one characteristic of the corresponding at least one deal, wherein the at least one deal object provides an electronic link to a detail page comprising information relating to the

corresponding at least one deal.

66 The system of claim 62, wherein the system is further configured to:
provide information regarding at least one schedule, wherein the
information regarding at least one schedule comprises meetings and
appointments,, wherein the information regarding at least one schedule is
automatically linked with at least one corresponding transaction; and
provide information regarding at least one action item, wherein the
information regarding at least one action item is automatically linked
with the at least one corresponding transaction.

67 The system of claim 62, wherein the system is further configured to
provide new business information comprising new information and changed
information on at least one monitored network site, wherein the at least
one monitored network site comprises the prespecified web sites and web
pages associated with the at least one transaction.
68 The system of claim 62, wherein the system is further configured to:
establish communications using electronic mail, facsimile, telephones,
and paging devices, wherein at least one communication is automatically
established using information comprising information regarding at least
one lead and the information regarding at least one transaction, wherein
a record of the communication is saved in a history file of a
corresponding at least one lead
and a corresponding at least one transaction;
provide at least one search device to locate records of the at least one
contact, the at least one deal, and the at least one account that match
at least
one criteria;
provide an electronic bulletin board and news group; and
provide at least one report comprising analytical reports and
informative reports about the at least one contact, the at least one
deal, the at least one account, and at least one appointment.

69 The system of claim 62, wherein the information regarding the at least
one transaction is provided using a web browser and Hypertext Markup
Language (HTML) and a protocol comprising Transmission Control
Protocol/Internet Protocol (TCP/IP), Hypertext Transfer Protocol
(I-ITTP), and Simple Mail Transfer Protocol (SMTP).
70 A computer readable medium containing executable instructions which,
when executed in a processing system,, causes the system to perform the
steps for managing at least one transaction comprising providing shared
information regarding the at least one transaction, wherein the at least
one transaction comprises at least one deal, at least one contact, and at
least one account, wherein the information of related transactions is
electronically linked, wherein the information regarding the at least one
transaction is provided over an Internet.

71 The computer readable medium of claim 70, wherein the instructions
further cause the system to perform the steps of:
registering at least one user to access the shared information regarding
the at least one transaction, wherein the at least one user is registered
using registration information comprising at least one name,, a title, at
least one electronic mail address, and at least one telephone number,
wherein the at least one user is assigned at least one log-in
identification and at least one password; setting up at least one
territory comprising groups of related accounts,.
contacts, and deals; and
assigning the at least one user to the at least one territory.

72 The computer readable medium of claim 71, wherein the step of

assigning comprises:
assigning the at least one user access to the at least one territory;
assigning one of a plurality of levels of access rights to each of the at
least one user for each of the at least one territory, wherein a
territory assignment and the title of the at least one user determines
access to the information regarding the at least one transaction.

73 The computer readable medium of claim 70, wherein the instructions
further cause the system to perform the steps of:
exporting the shared information regarding the at least one transaction
to at least one other application; and
importing the shared inIformation regarding the at least one transaction
from the at least one other application, wherein the at least one other
application comprises web sites, spreadsheets, databases, and contact
managers, wherein the steps of exporting and importing are performed
automatically on a periodic basis.,

74 The computer readable medium of claim 73, wherein the step of
importing comprises importing the shared information interactively
through an end-user import system and importing the shared information as
a batch operation, wherein source data comprising at least one field is
simultaneously mapped and imported into at least one file, wherein the at
least one file comprises information regarding the at least one
transaction.

75 The computer readable medium of claim 70, wherein the instructions
further cause the system to perform the step of electronically searching
the shared information regarding the at least one transaction,. wherein
at least one profile is used to locate records of at least one contact,
at least one deal, and at least one account that match a set of criteria.

76 The computer readable medium of claim 70, wherein the instructions
further cause the system to perform the steps of:
determining at least one deal to be displayed;
generating for display at least one deal object corresponding to the at
least one deal;
displaying the at least one deal object a determined distance from a
central point on a display, wherein the determined distance of the at
least one deal object represents a related stage of a plurality of stages
of the at least one deal, the central point representing a final stage of
the plurality of stages of the at least one deal.

77 The computer readable medium of claim 76, wherein a size and a color
and a shape and a fill pattern of the at least one deal object are each
indicative of at least one characteristic of the corresponding at least
one deal.

78 The computer readable medium of claim 76, wherein the at least one
deal object is animated, the animation indicating the progression and
regression of the corresponding at least one deal over a specified period
of time.

79 The computer readable medium of claim 76, wherein the at least one
deal object comprises an object tail, wherein the length of the object
tail and the direction of the object tail are each indicative of at least
one characteristic of the corresponding at least one deal.

80 The computer readable medium of claim 76, wherein the display is
divided into a plurality of sectors, the location of the at least one
deal object in a

particular sector representative of at least one characteristic of the
corresponding at least one deal.

81 The computer readable medium of claim 76, wherein the at least one
deal object provides an electronic link to a detail page comprising
information relating to the corresponding at least one deal.
82 The computer readable medium of claim 70, wherein the instructions
further cause the system to perform the steps of:
providing information regarding at least one schedule, wherein the
information regarding at least one schedule comprises meetings and
appointments, wherein the information regarding at least one schedule is
automatically linked with at least one corresponding transaction; and
providing information regarding at least one action item, wherein the
information regarding at least one action item is automatically linked
with the at least one corresponding transaction.

83 The computer readable medium of claim 70, wherein the instructions
further cause the system to perform the step of providing new business
information, wherein the new business information comprises new
information and changed information on at least one monitored network
site, wherein the at least one monitored network site comprises
prespecified web sites and web pages associated with the at least one
transaction.

84 The computer readable medium of claim 83, wherein the World Wide
Web is automatically polled to search for changes to prespecified Web
pages, wherein the automatic polling is conducted once per day at a
prespecified time
85 The computer readable medium of claim 83, wherein the new business
information comprises:
an overview of changed information regarding at least one lead and the
at least one transaction;
new appointments and action items and corresponding electronic links;
and
information regarding at least one new lead and at least one new
transaction and corresponding electronic links.

86 The computer readable medium of claim 70, wherein the instructions
further cause the system to perform the step of establishing
communications, wherein the communications comprise electronic mail,
facsimile, telephones,
and paging devices, wherein at least one communication is automatically
established using information comprising information regarding at least
one lead and the information regarding at least one transaction, wherein
a record of the communication is saved in a history file of a
corresponding at least one lead and a corresponding at least one
transaction.

87 The computer readable medium of claim 86, wherein at least one profile
is used to select at least one addressee from the information regarding
the at least one lead and the information regarding at least one
transaction, wherein the at least one profile locates contacts, deals,
and accounts that match at least one set of criteria, wherein the at
least one profile comprises predefined profiles and custom profiles.

88 The computer readable medium of claim 70, wherein the instructions
further cause the system to perform the steps of:
providing at least one search device to locate records of the at least
one contact, the at least one deal, and the at least one account that
match at least

one criteria;
providing an electronic bulletin board and news group; and
providing at least one report, wherein the at least one report comprises
analytical reports and informative reports about the at least one
transaction and at least one appointment.

89 The computer readable medium of claim 70, wherein the information
regarding the at least one transaction is provided using a web browser
and
Hypertext Markup Language (HTML) and a protocol comprising Transmission
Control Protocol/Internet Protocol (TCP/IP), Hypertext Transfer Protocol
(HTTP), and Simple Mail Transfer Protocol (SMTP).
90 The computer readable medium of claim 70, wherein the information
regarding the at least one deal comprises summary deal information,
detailed deal information, a complete history of events associated with
the at least one deal, and automatic access to an internet web site of at
least one customer associated with the at least one deal.

91 The computer readable medium of claim 70, wherein the information
regarding the at least one account comprises summary account information,
detailed account information, a complete history of events associated
with the at least one account, and automatic access to an internet web
site of at least one customer associated with the at least one account.

92 The computer readable medium of claim 70, wherein the information
regarding at least one deal comprises a history of each contact,
appointment,, and event associated with the at least one deal, wherein
communication with a representative of the at least one deal is
automatically established using the information regarding at least one
deal.

93 The computer readable medium of claim 70, wherein the information
regarding at least one contact comprises a history of activities
associated with the at least one contact,. wherein con-Lmunication with a
representative of the at least one contact is automatically established
using the information regarding at least one contact.

94 A computer readable medium. containing executable instructions which,
when executed in a processing system, causes the system to perform the
steps for a method of managing at least one transaction, the method
comprising the
steps of:
receiving information regarding at least one transaction over an Internet
using a web browser;
providing the information regarding at least one transaction to a user,,
wherein the at least one transaction comprises at least one deal, at
least one contact, and at least one account, wherein the information is
shared according
to a hierarchy and predefined territories; and
providing at least one electronic link among related transactions.

95 The computer readable medium of claim 94, wherein the instructions
further cause the system to perform the steps of:
determining at least one deal to be displayed;
generating for display at least one deal object corresponding to the at
least one deal;
displaying the at least one deal object a determined distance from a
central point on a display, wherein the determined distance of the at
least one deal object represents a related stage of a plurality of stages
of the at least one deal, the central point representing a final stage of

the plurality of stages of the at least one deal.

96 The computer readable medium of claim 94, wherein the instructions further cause the system to perform the steps of:
providing information regarding at least one schedule, wherein the information regarding at least one schedule comprises meetings and appointments, wherein the information regarding at least one schedule is automatically linked with at least one corresponding transaction; and providing information regarding at least one action item, wherein the information regarding at least one action item is automatically linked with the at least one corresponding transaction.

97 The computer readable medium of claim 94, wherein the instructions further cause the system to perform the step of providing new business information, wherein the new business information comprises new information and changed information on at least one monitored network site., wherein the at least one monitored network site comprises prespecified web sites and web pages associated with the at least one transaction.

98 The computer readable medium of claim 97, wherein the new business information comprises:
an overview of changed information regarding at least one lead and the at least one transaction;
new appointments and action items and corresponding electronic links; and
information regarding at least one new lead and at least one new transaction and corresponding electronic links.

99 The computer readable medium of claim 94, wherein the instructions further cause the system to perform the step of establishing communications, wherein the communications comprise electronic mail, facsimile, telephones,
and paging devices, wherein at least one communication is **automatically** established using information comprising information regarding at least one lead and the information regarding at least one transaction,, wherein a record of the communication is saved in a history file of a corresponding at least one lead and a corresponding at least one transaction.
100. The computer readable medium of claim 94, wherein the information regarding the at least one transaction is provided using the web browser and
Hypertext Markup Language (HTML) and a protocol comprising Transmission Control Protocol/Internet Protocol (TCP/IP), Hypertext Transfer Protocol (FITTP), and Simple Mail Transfer Protocol (SMTP).
101. The computer readable medium of claim 94, wherein the information regarding the at least one deal comprises summary deal information, detailed deal information, a complete history of events associated with the at least one deal, and **automatic** access to an internet web site of at least one customer associated with the at least one deal.
102. The computer readable medium of claim 94, wherein the information regarding the at least one account comprises summary account information, detailed account information, a complete history of events associated with the at least one account,. and **automatic** access to an internet web site of at least one customer associated with the at least one account.
103. The computer readable medium of claim 94, wherein the information regarding at least one **contact** comprises a history of activities associated with the at least one **contact** , wherein communication with a representative of the at least one **contact** is □automatically□
established using the information regarding at least one **contact** .

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Account Built-in Link Yes**Automatically**generated list of curr,
accounts*
Projected Close Date Date iYes
Stage List Yes List of deal stages. Lead and Closi
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Size Currency Yes
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Territory Built-in Link Yes**Automatically**generated list of cum
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Source List Yes List of currently defined deal source
Default = first item on list.
Qualifications Long String No
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m l> Fields to Monitor For Modification@'
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DEALS are REASSIGNED to a Different Territory PI
c
r@
m A NEW**CONTACT**is Created
A**CONTACT**is MODIFIED 1304
V Fields to Monitor For Modificatio@'
A TERRITORY'S OWNERSHIP is MODIFIED
NOTIFY TERRITORY NOTIFY TERI
NOTIFY WHEN: OWNER MEMBE
A NEW ACCOUNT is Created a El
An ACCOUNT is MODIFIED
@ Fields to Monitor For Modification
co A NEW DEAL is Created
a
m A DEAL is MODIFIED
Cn f.@,L402
Fields to Monitor For Modification
C LI Description
@f
m L] Territory
Cn
x Rating
m 1404
m Ejstaqe@@
El Source 1406
C
r@ El Deal Status@'

m
El Prob.@@i 408
El Pro]. Close
E3 size 1410
El Qualifications
El Account El
DEALS are REASSIGNED to a Different Territory
A NEWCONTACTis Created
ACONTACTis MODIFIED
@ Fields to Monitor For Modification
A TERRITORY'S OWNERSHIP is MODIFIED
FA I 4
NOTIFY WHEN: NOTIFY CREATOR NOTIFY F
Cn
A NEW TO DO is Created
Cn
A TO DO is MODIFIED by its Creator
A NEW APPOINTMENT is Created
M
Cn An APPOINTMENT is MODIFIED by its Creator
x
M
M A TO DO is CANCELLED by its Creator
An APPOINTMENT is CANCELLED by its Creator
An APPOINTMENT REQUEST is DECLINED by the Recipient(s)
A TO DO becomes OVERDUE
FA 1 5
1610
1602 '-HELP Impi
COMPANY NAME 16 14
co @-@FIND LOGO(
c
w i 6 o.4
co TITLE BAR F@l L:::] L
1618
m Fl Fl
cn
x
m
m 20
Li
i 6o8
m rl Fl
rl
F]
Li
FA 1 6
/45
NEW Button Use to create a new lead, account, to do item, **contact** ,
appointment, or deal, using the New Leads screen, New Accounts screen,
New To Do screen., New**Contacts**screen, New Appointment screen, or Now
Deals screen. NEW. Click on the plus sign H to create a new account. Or,
move the cursor anywhere over the button to bring up a list of all record
types that can be created. Click the desired option.
L@
Select the**profile**to use to determine which accounts are displayed in
the ACCOUNT SHOW drop-down LIST. Choose Active Accounts, Inactive
Accounts, All Accounts, or any custom-defined menu**profile** . RECORDS
control e to specify which accounts appear on the current page. SEARCH
button el ck to search for accounts matching the criteria which you can

specify on the Search screen. COMMUNICATE Click to send communications (mail, fax, e-mall, quote, labels, or envelopes) to button**contacts** associated with the selected accounts. **PROFILE**button Click to display the Account**Profiles**screen, which can be used to create, view, edit, and delete**profiles** . Displays accounts according to the selection in the SHOW drop-down menu. Sort the Account List by clicking on a column heading and use the ACCOUNT LIST sort arrows ACCOUNT LIST to determine the sort order. Click on an ACCOUNT LIST item twist-down to display detail information about the

accounto

ACCOUNT LIST Click a right-pointing twist-down to display details about an account. The Item twist-down twist-down will point downward when details are displayed. Click the downward-pointing @ V twist-down (1v) to hide the details. ACCOUNT LIST Indicates which direction a column is being sorted: descending (-i@&) or sort arrows ascending (,V). To sort column, click on the column hooding. EDIT icon Click the "pencil" by an ACCOUNT LIST item to display the Edit Account screen and edit or delete an account.

/;z

SUBSTITUTE SHEET (RULE 26)

ACCOUNT NAME Type the name of the account.

text field

co

C

W SAVE ACCOUNT lick to save this account to the database. After the account has been saved,

co

button the screen will clear and another account can be entered,

CLEAR FORM

M button Click to clear all the entered information without saving it.

Cn

M

M CLOSE button ell k to close the screen without saving the account. Use this button after all accounts have been entered and saved with the SAVE ACCOUNT button.

M

NEW MESSAGE Click to display the New Message screen and to start a new discussion topic.

Cn button

C

W DELETEITEM

co Click to delete items with DELETE checkboxes selected.

button

SHOW drop-down

M Select the time period for which you went messages displayed.

U) menu

x

M

M Click to display the Search for Message screen and find 9 certain topic

heading

SEARCH button

or word within the body of a message. lick to mark the Item for deletion when the DELETE ITEMS button Is clicked.

M --1 F 'c

DELETE checkbox-REPLY link At the end of each posted comment, the word REPLY... is underlined. Click oi this link to display the New Reply screen and reply to this topic. lick to save or read a file attached to a reply.

ATTACHMENT Icon 1 Fc@

DETAIL twist-down Click to display replies to topic messages. Click again

to hide the replies.
@ V
I 9
/45
If you are starting a new topic, this field appears blank. Type in the topic title.
TOPIC text field
If responding to an existing topic, the topic name will display here.
MESSAGE text If starting a new topic, this field appears blank. Type in the message, field If replying -to an existing topic, the text of the message to which responding will display here. Use the REPLY text field to respond to the message. REPLY text field Ffreplying to a message, type reply here. ATTACHMENTS Displays a list of attachments to this message. Attachments are associated list with a message by clicking the ADD button. ADD button Click to display a File Open dialog box and select attachment to associate with this message. SAVE MESSAGE1 Click to save this message and post it on the Bulletin board screen.
REPLY button
CANCEL button Click to discard this message without saving it, close the screen and return to the Bulletin board screen.
20
SUBSTITUTE SHEET (RULE 26)
/45
Select the type of match:
MATCH droHown Partial - The records containing the values in the search fields. menu Start - The records beginning with the values in the search fields. TOPIC text field 1 FEnter the text or numbers used to search topics. MESSAGE text Enter the text or numbers used to search messages. field
PERFORM Click to begin the search.
SEARCH button
CANCEL Click to return to the Bulletin board screen and cancel the search.
SEARCH button
FA 421
SUBSTITUTE SHEET (RULE 26)
/45
NEW Button Use to create a new lead, account, to do item, **contact** , appointment, or deal, using the New Leads screen, New Accounts screen, New To Do screen, New**Contacts**screen, Now Appointment screen, or New Deals screen. NEW. -D Click on the plus sign (+) to create a new appointment, Or, move the cursor anywhere over the button to bring up a list of all records that can be created. Click the desired option. Click on an underlined time on the day-view Calendar to display the New Appointment
screen and create an appointment for that time,
CALENDER FOR Select the name of the person for whom you want to display a Calendar. When drop-down menu you have displayed that Calendar you can schedule appointments on it just as you would on your own Calendar. BY drop-down Select the time period you want a calendar page display to cover. one day, menu one week, or one month. DATE text box Di plays the date currently selected on the calendar. Type in another date and click the VIEW button to display a calendar page for that date. VIEW button Click after typing a new date into the DATE text box to display a calendar page for that date. CALENDAR page Cli k to display the previous or next calendar page of the time period you selected with navigation arrows the BY drop-down menu. Click to indicate the meeting has been completed. Clicking the checkbox does not remove DONE checkbox: the appointment from your Calendar or your co-workers' Calendars. Thus, you can

keep a history of your appointments,
EDIT icon Click the "pencil" by an appointment to display the Edit
Appointment screen and edit AO@@ or delete an appointment. CONFLICT This
link appears when there is a time conflict when scheduling meetings.
hyperlink
FA 4242
- SUBSTITUTE SHEET (RULE 26)
/45
ACCOUNT field/ Type the full name or the first few letters of the account
associated with this record. FIND button Click the FIND... button to
display a list of matching account names on a drop-down menu. Select the
desired account name from the menu. DEAL Select the deal to associate
with this appointment. Only deals associated with the drop-down menu
selected account are displayed.**CONTACTS**scroll Select contgot(s) to
include in this appointment by clicking the**contact**name or names. box
The**contacts**on the menu are the□contacts□associated with the account
entered in the Account field. To select or deselect multiple**contacts** ,
use control-click. CO-WORKERS Select co-worker(s) to include in this
appointment by clicking the co-worker's name scroll box or names. To
select or deselect co-workers, use control-click. ION date field e in the
date of this appointment.
Typ
CALENDAR Cli k to display a calendar from which to select an appointment
date to be entered in button the ON field. FROM drop-down S lect the time
the appointment begins from the HOUR, MINUTE, and AM/PM menu drop-down
menus. TO drop-down Select the time the appointment ends from the HOUR,
MINUTE, and AM/PM menu drop-down menus. DESCRIPTION Type a description of
the appointment. This description is visible to everyone who scroll box
has access to the Calendar. NOTE scroll box Type a note about the
appointment. This note is visible only to the creator of the appointment.
ATTACHMENTS Displays a list of attachments associated with this
appointment.
list
ADD button Cll k to display a File Open dialog box and select an
attachment to associate with this appointment. You can attach any type of
Windows file. ISAVE button I k to save the appointment and notify invited
co-workers of the appointment, ICANCEL button I Thek to close the screen
without saving the appointment.
FA 42.3
- SUBSTITUTE SHEET (RULE 26)
/45
NEW Button Use to create a new lead, deal, to do item, account,
appointment, or**contact** , using the New Leads screen/ New Accounts
screen, New To Do screen, New**Contacts**screen, New Appointment screen,
or New Deals screen. NEW. Click on the plus sign H to create a new
account. Or, move the cursor anywhere over the button to bring up a list
of all record types that can be created. Click the desired option. SHOW
Select the**profile**to use to determine which□contacts□are displayed
in the**CONTACTLIST**. Choose Active□Contacts□ , Inactive□Contacts□ , All
Contacts , Personal□Contacts□ , or
drop-down menu
any custom-defined**profile** .
IRECORDS control pecify which**contacts**appear on the current page,
SEARCH button Click to search for**contacts**matching the criteria which
you can specify on the Search screen. COMMUNICATE Click to send
communications (mail, fax, e-mail, quote, labels, or envelopes) to the
button selected accounts.**PROFILE**button Cl ck to display the□Contact□
Profilesscreen, which can be used to create, view, edit and delete
profiles . Displays□contacts□according to the selection in the SHOW
drop-down menu. Sort the**CONTACTLIST**□Contact□List by clicking on a

column heading and use the**CONTACTLIST** sort arrows to determine the
sort order. Click on an**CONTACTLIST** item twist-down to display detail
information about
the**contact** ,
CONTACTLIST Click on a right-pointing twist-down to display details
about a**contact** , The. Item twist-down twist-down will point downward
when details are displayed. Click the downwardqV pointing twist-down (v)
to hide the details.**CONTACTLIST** indicates which direction a column is
being sorted: descending (,&) or ascending (,w). sort arrows To sort
column, click an the column heading.
qW I&
EDIT Icon Click the "pencil' by a**CONTACTLIST** Item to display the Edit
Contactscreen and Ao;@, edit or delete an account.

FA 42 44

/45
NAME Enter the**contact** 's name by selecting a salutation (such as Ms. or
Dr.) from the SALUTATION drop-down menu, tying the first name into the
FIRST text box, typing a middle initial into the M. 1. text box, and
typing the last name into the LAST text box. PERSONAL Click to make this
contactpersonal.
checkbox
Type the full name or the first few letters of the account associated
with this record. ACCOUNT/field Click the FIND... button to display a
list of matching account names on a drop-down FIND... button menu. Select
the desired account name from the menu. GET ACCOUNT Click to retrieve the
address information for the account associated with this**contact** *
ADDRESS button Use this feature only if the**contact**shares the same
address as the account, SAVE**CONTACT**Click to save this☐contact☐to
the database.
button
SAVE& ADD Click to save this**contact**and open a New Deal screen with
that account name and DEAL button associated**contact**filled in. CLEAR
FORM Click to clear the entered information without saving It.
button
CLOSE button Click to close the screen without saving the**contact** , Use
this button after you have entered and saved all your**contacts**with the
SAVE**CONTACT**button.

FA 4205

/45
NEW Button Use to create a new lead, account, to do item,**contact** ,
appointment, or deal, using the Now Leads screen, New Accounts screen ',
New To Do screen, New**Contacts**screen,
New Appointment screen, or New Deals screen,
NEW . . . Click on the plus sign (+) to create a new account. Or, move
the cursor anywhere over the button to bring up a list of all record
types that can be created. Click the desired ption. SHOW -Select the
profileto use to determine which deals are displayed in the DEAL LIST.
drop-down menu Choose Active Deals, All Deals, Closed Deals, Inactive
Deals, Leads, Open Deals, or any custom-defined**profile** .
IRECORDS control se to specify which deals appear on the current page,
SEARCH button Click to search for deals matching the criteria which you
can specify on the Search screen. COMMUNICATE Click to send
communications (mail, fox, e-mail, quote, labels, or envelopes) to the
button selected deals.**PROFILE**button Click to display the Deal
Profilesscreen, which can be used to create, view, edit, and delete
profiles . Displays deals according to the selection in the SHOW
drop-down menu. Sort the DEAL LIST Deal List by clicking on a column
heading and use the DEAL LIST sort arrows to determine the sort order.

lick on an DEAL LIST item twist-down to display detail information about the deal. DEAL LIST Click on a right-pointing twist-down (@) to display details about a deal. The item twist-down twist-down will point downward when details are displayed. Click the downward@ qV pointing twist-down (vF) to hide the details. DEAL LIST Indicates which direction a column is being sorted: descending (.&) or ascending ('V).
sort arrows
IVA, To sort column, click on the column heading. EDIT icon Click the "pencil" by a DEAL LIST item to display the Edit Deal screen and edit or delete a deal.
R 26

SUBSTITUTE SHEET (RULE 26)

/45
ACCOUNT field/ Type the fall name or the first few letters of the account associated with this record. FIND button Click the FIND... button to display a list of matching account names on a drop-down menu. I fSelect the desired account name from the menu.CONTACTSSelect the□contact□ (s) withe which this deal is associated. This list appears after the drop-down menu account has been entered in the ACCOUNT field. DESCRIPTION nter a short description of this deal. This description is used to identify the deal text field on the Deal List. PROJECTED Enter the date this deal is projected to close. CLOSE date field you can also click the Calendar button that appears beside the field and select your
date from the pop-up calendar that appears,
STAGE drop-down Select the stage of this deal. For example, Lead, Qualified, or In Negotiation.
menu
RATING drop-down Select the rating of this deal. For example, Hot, Medium, Cold.
menu
PROBABILITY
drop-down menu Enter the percentage probability of this deal closing.
TERRITORY Select the territory associated with this deal.
drop-down menu
SOURCE
Select the source of this deal.
drop-down menu
SIZE currency Type the estimated revenue to be generated by the deal.
fleld
SAVE DEAL Click to save this deal to the database.
button
CLEAR FORM Click to clear all entered information without saving it,
button
CLOSE button Click to close the screen without saving the deal. Use this button after you have entered and saved all your deals withe the SAVE DEAL button.
A 27

SUBSTITUTE SHEET (RULE 26)

/45
Enter the specified new account infDrmetion. Each new lead must be associated with
ACCOUNT
INFORMATION ,count, Fields that are underlined are required information. A new account will be created from this information.
NOCONTACT
INFORMATION Click if there is nocontactcurrently associated with this lead.
checkbox
CONTACTEnter the specified□contact□information, if available.
INFORMATION

DEAL Enter any available lead information.
INFORMATION
SAVE LEAD Click to save this lead. After the lead has been saved, the
screen will button clear and you can enter another lead. CLEAR FORM Click
to clear all the information without saving it.
button
CLOSE butto:n ::]FCIlck to close the screen without saving the lead.
FA 4V 428
- SUBSTITUTE SHEET (RULE 26)
/45
SHOW drop-down S lect the scale to which deals should be mapped:
Probability of Closing, menu Days Until Close, or Deal Stages. FOR
drop-down Select the type of deals to be displayed: Active, All, Closed,
Inactive, Leads, or a Mena customprofileon the menu. You can also
create a new gMfile. Appears when the Days Until Close option is selected
from the SHOW drop4ovin
menuo
FROM Enter a start date as an anchor (center of the RSOD) in determining
the amount of date field time until a deal is projected to close. You can
type in the date or use the CALENDAR icon to display 9 pop-up calendar
from which you can select the date. After entering a dote, click the SET
button to set the date. RECORD control-- lays when there ore more than 12
Items displayed on the RSOD. DEAL circles is represented on the RSOD
Screen as a circle. TERRITORIES Indicates the color associated with each
territory.
legend
29
SUBSTITUTE SHEET (RULE 26)
/45
3200
3212 206
3242
3226
3236
3223 IPPY CO*
3222
3232
3214 %@A 03 3233
ETS INC,
323 looo@ABC CORi 3221
SUPER STUFFi
3237
3245 3227
3234 3225
@Xyz CORP, 3241 3247
244 TECH LTD.
3235
4
3208
321
FA 50
SUBSTITUTE SHEET (RULE 26)
3252 3254 3256 3258 3260
co 32LO@@ NAME SIZE TERRITORY) COMPLETION STAGE
DATE (TODAY*) 0 M,
cn
3270
ABC CORP, $ 50,000 SE 1/15/97 5
m 3272
En $ 150,000 NW 2/1/97 4

m 3274
m --%WIDGETS INCe $ 250,000 NE 3/1/97 3
"i
3276
---%)(YZ CORP. $ 100,000 SW 5/1/97 2
m 3278
TECH LTD. $ 200,000 SW, 4/1/97 2
3280
--%ZIPPY CO, 50,000 NE 5/1/97 3
3282
SUPER STUFF 150JO00 SE 4/1/97 2
ASSUME TO
t 31
3500
3510 SCALE
Ca
c 25 INCH DIAMETER PER $50,000 DEAL SIZE
w
cn
*5 INCH DISTANCE FROM CENTER PER i MONTH OF LEAD TIME
INCH OF TAIL PER STAGE MOVED IN PAST MONTH
m
cn 3520 NOTES
m
m STAGES ARE FROM I TO 5, WHERE I IS THE BEGINNING AND 5 IS THE TARGET,
SUCH AS
GETTING A DEAL BOOKED,
c
r@
m
3530 REGIONS ARE**GROUPED**IN QUADRANTS:
  NW IN TOP LEFT
  NE IN TOP RIGHT
  SW IN BOTTOM LEFT
  SE IN BOTTOM RIGHT
FA i 342
/45
3600
le
3602
ZIPPY co,
AC
WID ETS INC,
.... ------ ------------------------
ABCCORi SUPER STUFF
XYZ CORD
TECH LTD.
FA I u3 u3
SUBSTITUTE SHEET (RULE 26)
3'
de
Ae
NAME SIZE TERRITORY COMPLETION STAGE
cn DATE (TODAYI 0 M
c:
i ABC CORP, 50,000 SE 1/15/97 5
m
cn
x ACME 150,000 NW 2/1/97 4
m

m
WIDGETS INC* $ 250,000 NE 3/1/97 3
XYZ CORP, $ loolooo SW 5/1/97 2
TECH LTD, $ 200,000 SW 4/1/97 2
3702
ZIPPY co, 50,000 NE 5/1/97 3- CLOSED
SUPER STUFF 150,000 SE 4/1/97 2
ASSUME TO
Fl(34
/45
302
3304
ENTER CUSTOMER INFORMATION MANAGEMENT SYSTEM (CIMS)*J`@
+ 3306
USER SELECTS EVENTS FROM CIMS CIMS BUILT-IN ALGORITHM 3308
DATABASE OR INPUTS EVENTS FOR NO SPECIFIES EVENTS FOR
DISPLAY AS EVENT OBJECTS ON RADAR DISPLAY AS EVENT OBJECTS
SCREEN OPPORTUNITY DISPLAY (RSOD).1 ON RSOD,
YES
USER SELECTS EVENT CHARACTERISTICS FOR RSOD EVENT 3310
 OBJECTS INCLUDING, BUT NOT LIMITED TO:
CHARACTERISTIC FOR CONTROL OF RSOD OBJECT SIZE,
CHARACTERISTIC FOR CONTROL OF RSOD OBJECT DISTANCE FROM
CENTER OF DISPLAY.
- CHARACTERISTIC FOR CONTROL OF RSOD OBJECT RATE OF
CHANGE INDICATIONS.
- CHARACTERISTIC NORMALIZATION STANDARD FOR RSOD OBJECT
RATE OF CHANGE INDICATIONS*
CHARACTERISTIC FOR CONTROL OF RSOD OBJECT COLOR,
CHARACTERISTIC FOR CONTROL OF RSOD OBJECT DISPLAY SECTOR.
6@@ 7@@
CIMS BUILT-IN ALGORITHM SETS RSOD EVENT CHARACTERISTICS 312
NOT SPECIFIED BY USER,
3314
DATA REQUIRED FOR RSOD EXTRACTED FROM CIMS DATABASLt%%--,'
+ 3316
CIMS GENERATES RSOD EVENT
+ 3318
USER VIEWS EVENT OBJECTS 0
USE HYPER-LINKS FROM EVENT OBJECTS TO DETAIL PAGES 3320
7@ 3322
RECONFIGURES RSOD DI`SPLAY?@
O@ 2324
JUSER HYPER-LINKS FROM EVENT OBJECTS TO DETALE!2q%%--:;
3326
3328
SUBSTITUTE SHEET (RULE 26)
3400
J@@
3402 NAME: XYZ CORP,
3404 ADDRESS: 123 Q STREET
Ca PALO ALTO, CA 94301
c
w 3406 PHONE: (415) 321-1234 (MAIN)
cn
(415) 321-1239 (FAX)
c: 3408
i @- -@@ INDUSTRY: PHARMACEUTICALS
m
cn 34 1 0 EMPLOYEES: 1135

x
m 3412 REVENUE (I 996): $177MM
m
3414 CREDIT RATING: A
3 416 URL: http:
www.xyz.com
r
m 3418 TERRITORY: SW
3420 DEAL SIZE: $100,00
3422,,. EXPECTED CLOSE: 5/1/97
3424 @..- STAGE (AS OF 1/ 1/97): 2
FA 3 6
ER(
lRetrieve records from multiple tables it once
Search key fields (Account Name, Deal Description,
Cn Yes
ContactName)
@4 ISearch Non-key data fields
M
Cn
x Within a single record type, search on multiple fields
M
M at once
jAdvanced search criteria
r
M ISave criteria for future use
Flexibility O = most configurable) 2
Quickness and ease of use (I = quickest to setup
and use)
/45
ACCOUNTS Click to include account records in the search.
checkbox
CONTACTSel ck to include☐contact☐records in the search.
checkbox
DEALS checkbox FFc@kto include deal records in the search. SCOPE Select
whether the records should contain, start with, exactly match the text
drop-down menu in the FIND field. FIND TEXT box FType the text to be
found. GO! button ck to find the specified text.
Fe @rl
Displays the results of the Find search. Records matching the FIND text
field are RESULTS box displayed in up to three**groups**(accounts,
contacts , and deals). Each record is underlined so that you can
hyperlink to a detail view of it.
3(5
SUBSTITUTE SHEET (RULE 26)
/45
MATCH drop-down Select the type of match:
menu Exact - The records precisely matching the values in the SEARCH
fields. Partial - The records containing the values in the SEARCH fields.
Start - The records beginning with the values in the SEARCH fields.
SEARCH fields [Enter the text or numbers into the field you want used in
the search. SEARCH button Click to start the search and display the
results on the Account,**Contact** , or Deal List, as appropriate. CANCEL
button Cl ck to close the screen and cancel the search.
F/(* 59
- SUBSTITUTE SHEET (RULE 26)
/45
NAME text field Type the name of the**profile** . This value will appear in
the SHOW dropAown menu on the list screen. DESCRIPTION If desired, type a
longer description of the**profile** .

text field
Select the access type from the drop-down menu. **PROFILE** Select
"private" if you are the only person who will be using the **profile** . The
profile ACCESS will display on your list screen SHOW drop down menu
only. drop-down menu Select "shared" to allow co-workers to use the
profile . The□profile□will appear on t e SHOW drop-down menu of all
co-workers.

PROFILE
SELECTION fields Define your selection criteria. Click a RESTRICT
checkbox to choose a field to use as and RESTRICT part of the selection
criteria.- Then define the selection criterion for that field.
checkboxes
SAVE **PROFILE** Click to save the□profile□and return to the list screen
from which you came. The **profile** button you created will be in effect
and will be displayed on the SHOW drop-down menu.
TlIck
[CANCEL button to exit the New **Profile** screen without saving the
profile .
11a 40
SUBSTITUTE SHEET (RULE 26)
/45
NEW Button Use to create a new lead, account, to do item, **contact** ,
appointment, or deal, using the ,New Leads screen, New Accounts screen,
Now To Do screent New **Contacts** screen, New Appointment screen, or New
Deals screen. NEW. . . 'Click on the plus sign H to create a new account.
Or, move the cursor anywhere over the button to bring up a. list of all
record types that can be created. Click the desired
option,
SHOW Select the **profile** to use to determine which to do items are
displayed in the TO DO LIST.
drop-down menu Choose All my open to dos, My open to dos - Nex

t 7 days, My open to dos - Next
30 days, My closed to dos, Open to dos I've assigned to others, or Closed
to dos I've assigned to others.
RECORDS control
 pecify which to do items appear on the current page. Displays your to do
items according to the selection in the SHOW drop-down menu. TO DO LIST
You can sort the To Do List by clicking on a column heading and use the
TO DO List sort arrows to determine the sort order. Click on an TO DO
LIST item twist-down to display detail information about the do. Click to
indicate the to do item has been completed. DONE checkbox Clicking the
DONE checkbox will also display a Task Completed screen that enables you
to update informatıon and specify when the item was completed. TO DO LIST
Click on a right-pointing twist-down (>) to display details about a to
do. The item twist-down twist-down will point downward when details are
displayed. Click the downwardpointing twist-down (qw) to hide the
details. TO DO LIST Indicates which direction a column is being sorted:
descending (.&) or ascending (vr). sort arrows To sort column, click on
the column heading.
qVA&
EDIT icon Click the "pencil' by a TO DO LIST Item to display the To Do
screen and
A00110 edit or delete a to do*
FA
SUBSTITUTE SHEET (RULE 26)
/45
ACCOUNT field/ Type the full name or the first few letters of the account
associated with this record. FIND button Click the FIND... button to
display 9 list of matching account names on a drop-down menu. Select the

desired account name from the menu. CONTACT Select the contact(s) you want to associate with this to do item. The menu displays drop-down menu all the contacts associated with the account specified in the ACCOUNT field or you personal contacts, if no account was selected. You can select or deselect multiple contacts by using control-click. DEAL drop-down Select the deal you want to associate with this to do item. If you did not select an menu account, the Deal menu will not be displayed. FOR drop-down Select the co-worker to whom this to do item is to be assigned. Select yourself menu (the default) if the to do item is for you. DUE BY date field Enter the due date for this Item. AT DROP-DOWN Select the time this to do item is due from the HOUR, MINUTE, and AM/PM menus drop-down menus. TYPE OF TASK Select the type of tasks this to do item ir. Call, E-mail, Fax, Meeting, Fulfillment, drop-down menus Quote, Visit, or Other. DESCRIPTION Type a description of this to do item. A description reminds you or tells your co-worker scroll box exactly what needs to be done. LEVEL drop-down Select the urgency level of this to do item: High, Medium, or Low.
menu
ATTACHMENTS Displays a list of attachments associated with this to do Item.
list
ADD button Click to display a File Open dialog box and select an attachment to associate with this to do item. You can attach any type of Windows file. SAVE TO DO Click to save this to do item and odd It to the appropriate To Do List.
button
ICANCEL button 1FC'IIck to close the screen without saving the to do item.
Ra 442
- SUBSTITUTE SHEET (RULE 26)
/45
DELETEITEMS Click to delete the New Information itern(s) that have already been selected by clicking button the DELETE checkboxes. DELETE ALL Click to delete all the items on the New Information screen, whether they have been button selected with the DELETE checkbox or not.
Select the new information item you want to display. You can select:.
Show all messages What's changed - All
What's new - All What's Changed - To Dos
SHOW drop-down What's new - To Dos What's Changed - Appointments
menu What's new - Appointments What's Changed - Accounts
What's new - Accounts What's Changed - Contacts
What's new - Contacts What's Changed - Deals
What's new - Deals What's Changed - Events
What's new - Events What's Overdue - All
I I I
RECORDS control Use to specify which items appear on the current page. This control appears only when there are more records then can be displayed on a single page. MONITOR WE13 Clic to display the Web Page Monitoring Preferences screen and select the Web pages
PAGES button you want to monitor*
DELETE chackbox Clic to mark this item for deletion. Items ore not actually deleted from the New Information screen until the DELETE ITEMS button is clicked. Next to a section heading, click the right-facing (@) twist-down to show the Items in that selection, The twist-down will point downward when details are displayed. Click the NEW downward-pointing twist-down (mv) to hide the details. INFORMATION Next to an item, click the right-being (@) twist-down to display details about changes Item twist-downs to the Item. The twist-down will point downward when details are displayed. Click the downward-poinfing twist-down (1w) to hide the details. You may also click on the hyperlink associated with the item to

go to the detail page fir is Item.
FA 443
- SUBSTITUTE SHEET (RULE 26)
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NEW WEB PAGE Click to display ew Web Page To Monitor screent which
enables you to specify button a new Web page to track. DELETEITEM(S)
Click to delete the Web page(s) that have been selected by clicking the
DELETE button checkbox. WEB PAGE LIST Displays the names of Web pages
being monitored, the keywords associated with the Web page, the account
with which the Web page is associated, and the DELETE checkbox and EDIT
icon for each Item. DELETE checkbox Click to mark the WEB PAGE LIST item
for deletion. The Item is not actually deleted until the DELETE ITEMS
button is clicked. EDIT icon Click to display a screen which enables you
to change the URL of the Web page and the keywords associated with It.
44
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/45
ACCOUNT field/ Type the full name or the first few letters of the account
associated with this record. FIND button Click the FIND... button to
display a list of matching account names on a drop-down menu. select the
desired account name from the menu. Type in the URL (Web address) of the
page you want to monitor for changes. WEB PAGE If you choose to associate
sin account with a monitored Web page, the system text field will
automatically fillain the URL (Web address) from the account record. TO
avoid creating linkage, leave the ACCOUNT field blank. KEYWORDS Fill In
the Keywords field to be notified only If the web page changes and text
field contains at least one of the keywords. If you leave this field
blank, you will be notified when any changes are made to the web page.
SAVE WEB PAGE Click to save this web page information and return to the
Web Page Monitorin button Preference$ semen. CANCEL WEB Click to close
the semen without sving any web page information.
PAGE button
FA 45
SUBSTITUTE SHEET (RULE 26)
INTERNArrIONAL SEARCH RMORT Intc ional Application No
PCT/US 99/19766
A. CLASSIFICATION OF S 8 ECT MATTER
IPC 7 G06F1776'0'
According to International Patent Classification (IPC) or to both
national classification and IPC
B. FIELDS SEARCHED
Minimum documentation searched (classification system followed by
classification symbols)
IPC 7 G06F
Documentation searched other than minimum documentation to the extent
that such documents are included in the fields searched Electronic data
base consulted during the international search (name of data base and.
where practical, search terms used)
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or priority date and not in conflict with the application but
"A" document defining the general state of the art which is not cited to
understand the principle or theory underlying the
considered to be of particular relevance invention
"E" earlier document but published on or after the international X'
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filing date cannot be considered novel or cannot be considered to
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inventive step when the document is taken alone which is cited to
establish the publication date of another "Y" document of particular
relevance; the claimed invention citation or other special reason (as
specified) cannot be considered to involve an inventive step when the "O"
document refernng to an oral disclosure, use, exhibition or document is
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"P" document published prior to the international filing date but in the
art. later than the phority date claimed document member of the same
patent family Date of the actual completion of the international search
Date of mailing of the international search report
14 January 2000 26/01/2000
Name and mailing address of the ISA Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2
NL - PP80 HV Rijswijk
Tel. (+31-70) 340-2040, Tx, 31 651 epo nI,
Fax: (+31-70) 340-3016 van der Weiden, A
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EDN
July 8, 1999

Home invasion: Commercial networks move in.(home automation systems)

Author/s: Maury Wright

ALTHOUGH LONWORKS IS POPULAR IN COMMERCIAL BUILDING-
CONTROL APPLICATIONS, IT MAY ALSO PROVE TO BE THE BEST
CHOICE FOR HOME AUTOMATION. TO EVALUATE THIS POSSIBILITY,
I DECIDED TO CHECK IT OUT MYSELF.

LON WORKS MIGHT BE THE Rodney Dangerfield of the electronics
industry: It gets no respect. People remember terminology such as
"Neuron" and "LonTalk," but many mistake and dismiss LonWorks as
an unrelated technology, such as a neural network or a data LAN.

Well, LonWorks, which Echelon developed and which is now a widely
supported industry standard, has emerged as the best choice for
automating commercial lighting and heating, ventilation, air-
conditioning (HVAC) systems, as well as many other aspects of
buildings' physical plants. LonWorks owes its success to the fact that
it comprises an end-to-end array of technologies--from physical
transceivers to application-layer software--that implements a
complete control network. Moreover, you can easily bridge LonWorks
to data networks and the Internet. These characteristics also make
the technology attractive for home automation and control. Only cost
perhaps stands in the way of widespread deployment in homes. Even
designers of embedded systems might find LonWorks suitable for
specialized applications, such as data-acquisition or -control systems.
Given the LonWorks potential and the emerging home-automation
market, I decided to take a hands-on look at the technology.

Before proceeding into the details of LonWorks design, you should
review the technology. LonWorks devices communicate using the
LonTalk network protocol. "Neuron" ICs implement LonTalk using a
combination of firmware and hardware. LonTalk is an open industry
standard, which the Electronic Industries Alliance (EIA) publishes as
EIA-709.1, and companies are free to port the protocol to other
[micro] Ps (see sidebar "Neurons and other LonTalk
implementations"). Realistically, however, the Neuron ICs that
Cypress, Toshiba, and Motorola sell provide the most cost-effective
route to LonWorks device designs.

You can connect LonWorks nodes via a variety of media, of which the most popular are twisted-pair wiring and power-line carriers. Other choices range from RF to optical to a transceiver that transmits LonTalk via electric fences. You can connect typical twisted-pair networks using random, bus, loop, and most other network topologies (Figure 1). You can bridge LonWorks channels operating on various media using a router. Together, the physical-layer transceiver, the Neuron IC with LonTalk protocol, and the application software that runs on the Neuron map directly to the seven-layer Open Systems Interconnection network model.

[Figure 1 ILLUSTRATION OMITTED]

The key to LonWorks capabilities, however, is not just the physical network but also the logical connections between nodes. For example, you can logically bind a sensor object, such as a light switch, to an actuator object, such as a light fixture. You create these logical network links using a PC running a network-management application on the multiclient LonWorks Network Services (LNS) software that's somewhat equivalent to a network operating system. LNS also supports Transmission Control Protocol/Internet Protocol (TCP/IP) networks, allowing you to bridge control and data networks (see sidebar "Linking control and data networks"). Note that you require the PC and LNS only to configure or update a network. Once you configure and link a LonWorks device with other nodes, it can function independently of any master controller. Optionally, a PC or other controller can be a permanent part of a network design to control complex lighting, HVAC, or other applications. To promote interoperability between devices, Echelon and its partners founded the LonMark Interoperability-Association (www.lonmark.org) to establish standards and conventions.

NODE-TO-NETWORK DESIGN

I planned to design a simple LonWorks node using a prototyping tool and to connect my design to a network with other nodes. Therefore, my first step was a quick look at development tools. To design a device, you have no place to turn except Echelon and its development tools that have evolved over the past decade. Prices for the DOS-based LonBuilder developer's kit start at $19,995. LonBuilder, the oldest of Echelon's tools, allows you to develop devices and to control, commission, and test multiple devices on a network. The product includes a chassis with modular expansion cards that let you customize the system with a choice of Neuron emulators, protocol analyzers, and other options. Anyone experienced with [micro] P- or [micro] C-development tools can quickly come up to speed with LonBuilder, although the software could use a face-lift.

To develop a device and perform basic troubleshooting, you can turn to the Windows-based NodeBuilder development tool with prices starting at $4495. NodeBuilder includes a prototype LonWorks node and an ISA-interface card, software, and other accessories. NodeBuilder is easier to use than LonBuilder, but you cannot use it to

test and implement multiple devices. With LonBuilder or NodeBuilder, you will likely need to buy optional add-ons, such as transceivers, Neuron ROM programmers, routers, and other assorted goodies that could add from a few hundred to several thousand dollars to your start-up costs. Echelon also sells development bundles for $50,000 and $100,000. These products include one or more LonBuilder and NodeBuilder systems along with many options and training courses.

These development tools have prices that are comparable with those of development systems for high-end [micro] Ps. On the other hand, you can get much less expensive PC-based tools for [micro] C-based development. Prices should drop as the LonWorks market expands and as more designers undertake device designs. Moreover, now that LonTalk is an open protocol, other companies could offer competing development tools, and competition invariably drives prices down.

Meanwhile, I suspect that the high prices gave Echelon a reason to waver when I asked to use some tools for my project. Business Development Director Reza Raji speculated that he could arrange a loan but immediately suggested an alternative. He offered me the option of attending the Introduction to LonWorks Device and Network Design class that is one of several training classes that Echelon regularly offers. Raji explained that almost everyone who buys an Echelon development tool attends the $2250 class. The class would afford me a learning scenario similar to the one that any new LonWorks designer would undergo. After a little hesitation, I decided the training class was a good idea. I would have access to far more equipment than if I had arranged the loan and retreated to my garage lab.

I was one of a dozen students that joined Echelon Product Application Engineer Marc Paris for the class. After just a few minutes, the road map was clear. We would go through a sequence of lectures and lab sessions, all leading to the ultimate goal: a class project (Figure 2). For the project, each of us would individually design a LonWorks device, and then we as a class would connect and implement the collection into a working system. Our network would include HVAC, lighting, security, fire safety, and other features. The project demonstrates how independently designed devices can interoperate and how a control network delivers far more value than simple convenience when you integrate multiple functions into a system. Moreover, the class project turned out to be just the type of undertaking that I had envisioned for this article.

[Figure 2 ILLUSTRATION OMITTED]

Ultimately, I took on the task of designing a light/occupancy sensor. The occupancy sensor would detect the presence of a person and could then--with an access controller--trigger a room light to turn on or trigger an intruder alert, or it could simply sound a chime indicating the arrival of a visitor. It ultimately could even determine whether the fan runs in an HVAC system. The light sensor, meanwhile, could feed data to a constant-light controller, which

automatically adjusts room lighting based on the measured ambient light. The ambient light might change over the course of a day because of outside light or open or closed shades.

I received a specification that described the required functions of the light and occupancy sensor, which signals the arrival or departure of a person by changing the state of a network variable, nvo01 Occupancy (Figure 2). Network variables are the keys to device interoperability and allow you to logically bind sensors and actuators in a LonWorks network. You program Neuron ICs using Neuron C, an extended version of C. You can declare a network variable in Neuron C similarly to int, char, or other variable types. For example, consider the lines of C in Listing 1.

```
LISTING 1
int Go_occupancy = 1;//1 = go with update, 0=debounce period
network output sd_string("@2|1") SNVT_occupancy nvo01
Occupancy=(OC_UNOCCUPIED);
```

The first line is a standard integer-type variable declaration with an initial value of one. I used the Go_occupancy variable as a debounce flag that gated whether a change in occupancy status was written to the network. Part of the light-and-occupancy-sensor specification required that the sensor avoid repeatedly sending state changes as a person perhaps stood or paused in a doorway. After a state change, the sensor must wait 5 seconds before it would detect and send another state change.

The second line in the code fragment declares the "nvo01Occupancy" network variable, which is an output from the sensor. You could name the variable anything you like, but standard LonWorks practice dictates using an "nvi" or "nvo" prefix to indicate the input and output network variables, respectively. The "01" in the name indicates the first network variable the occupancy sensor uses. You could have multiple output variables from one sensor. Variable names have nothing to do with how sensors and actuators later logically bind together. A network-configuration tool can bind compatible variables from different LonWorks devices, regardless of the variable names and even if they have the same name. The variable-naming conventions simply make code easier to debug and maintain. The "nvo01 Occupancy" variable in Figure 2 is bound to network-input variables in three other devices. When you configure a network, you can also bind output variables from multiple devices to a single input variable.

A couple of other parts of the network-variable declaration require explanation. The "sd_string("@2|1")" declaration is part of a node self-documentation scheme. A full explanation is complex and probably unnecessary, but a compiler directive defines a self-documentation string that's stored in each device. Each declaration of network variables must reference that "#pragma" directive, and self-documentation ultimately allows a network-management tool to discover the capabilities of a new device that connects to a LonWorks network. The sd_string declaration isn't necessarily a requirement for a node to operate properly but ultimately is necessary for the LonMark Interoperability Association to certify a device.

The "SNVT_occupancy" attribute plays a more visible role in device interoperability. The LonMark group has defined a list of Standard Network Variable Types (SNVT, pronounced "snivet"), one of which is "SNVT_occupancy." One purpose of SNVT involves the fact that, to bind network variables, you need to be sure two variables are of the same type, just as in C, in which many operators can handle only two variables of the same type. But LonWorks network variables can be far more complex in interoperability because two independent devices have no way of agreeing on variable attributes, such as units and range. "SNVT_occupancy" is a relatively simple example, defining states 0, 1, 2, and 3 to represent different conditions, but consider the declaration I used in my light sensor (Listing 2).

LISTING 2

network output sd_string("@1|1") SNVT_lux nvo01LuxLevel;

By adding the "SNVT_lux"declaration, you are essentially declaring the variable "nvo01LuxLevel" to be 0 to 65,535 lux with 1-lux steps. Other SNVTs are more complex, and some define C data structures rather than simple variables. Without SNVTs, it would he difficult for independent designers to develop interoperable products. With SNVTs, system integrators or installers can simply find and bind input and output variables of the same SNVT type. At runtime, when a Neuron C program writes to a network variable, that variable automatically propagates to all logical bindings on the network.

You can find a list of SNVTs and other LonMark standards on the association's Web site at www.lonmark.org/ products/guides.htm. The LonMark Interoperability Association has gone beyond SNVTs to boost interoperability. It is continually defining functional profiles (FPs) for common devices in the access-control/security, fire-safety, industrial-control, lighting, and HVAC-and-refrigeration area. The list of FPs grows as designers propose and justify the need for new ones. An FP defines mandatory network variables, optional network variables, mandatory configuration properties, optional configuration properties, and an optional manufacturer-defined section.

For my project, I had to design both the light and occupancy sensors in accordance with published FPs (figures 3 and 4). Index numbers that are part of the self-documentation process identify these FPs. Moreover, FPs mandate the network variables. To understand how more of the FP elements come into play, consider two declarations from my program (Listing 3).

[Figures 3-4 ILLUSTRATION OMITTED]

LISTING 3

//Optional Light Sensor FP Configuration Property Declarations

config network input sd_string("&2,2,0\x80,52,0:65534") ·
SNVT_time_sec nci01MinSendT=(10);

config network input sd_string("&2,2,0\x80,49,0:65534")
SNVT_time_sec nci01MaxSendT= (600);

You may recognize the statements as a declaration of the "nci01MinSendT" and "nci01MaxSendT" variables. These declarations fall under the light-sensor FP group of optional configuration

properties. Other optional properties that I omitted include address calibration, light reflection, physical location, and a minimum delta that can trigger an update. The device specification for the class project directed me to employ only the two time-related properties. The "nci01MinSendT" variable defines a minimum time between updates of "nvo01LuxLevel." "SNVT_time_sec" specifies increments of 0.1 sec, so, based on an initial value of 10, my program would not update"nvo01LuxLevel" more than once a second, regardless of changes in the light level. Setting a minimum ensures that the sensor doesn't needlessly consume extra network bandwidth sending updates more often than required.

LonMark FPs allow for several ways of implementing configuration properties. Some configuration properties are significantly complex and are thus stored in memory arrays or even on a disk drive in complex LonWorks nodes that always connect to a host computer. The examples "nci01MinSendT" and "nci01MaxSendT" show the simplest and most common means of handling a configuration property: through the use of a network variable. Here again, the LonMark group has defined Standard Configuration Parameter Types (SCPTs), a list of standard configuration variables. But, despite the SCPT terminology and the "config" prelude to the declarations, variables "nci01MinSendT" and "nci01MaxSendT" use the same LonWorks resources as standard network variables. The "nci" prefix implies that the variables are network-configuration inputs. Just as with other network variables, you can bind or even write to a configuration variable when you install and implement a device. During network operation, some controller-type devices might need to change a configuration variable in a bound device. For instance, the constant-light controller might change the minimum interval for less frequent updates at night.

In my light sensor, I used the "nci01MaxSendT" variable to implement a "heartbeat" (LonWorks' terminology). With an initial value of 600 (60 sec), the light sensor should update the "nvo01LuxLevel" network variable every minute, even when the measured level doesn't change. By forcing regular updates, a controller on the network would still know the light sensor is alive and operating properly. Some FPs even mandate dedicated heartbeat network variables.

EXAMINING THE NEURON IC

Now that you understand how network variables and FPs combine to support interoperability, you should examine the Neuron IC and how Neuron C supports the processor. All Neuron ICs integrate three processors with two dedicated to LonTalk. Echelon and its semiconductor partners closely control the proprietary firmware for the two dedicated processors. Designers can program the third processor using Neuron C. Other features of all Neurons include 11 I/O lines, two 16-bit counter/timers, and a standard five-pin transceiver interface. You can choose from two versions of Neurons with several options available in each type. The 3120 family includes a small amount of RAM and EEPROM and 10 kbytes or more of PROM for program storage. The 3120 has no external memory interface

and no way, other than the I/O lines, of connecting with external hardware. The 3150 includes a small amount of RAM and EPROM but relies on external memory for program storage. You can also use the memory interface to connect memory-mapped I/O devices. Both the 3120 and the 3150 are available in a variety of flavors with different clock speeds and on-chip memory configurations. The latest offerings from Toshiba, the 3120FE3M and 3120A20M, operate as fast as 20 MHz, and the 3120A20M integrates a three-channel, 16-bit ADC.

You might think that the limited I/O options, especially on the 3120, limit applications for the ICs. But Neuron C supports 34 I/O models using the 11 I/O pins and the counter/timers. As you might suspect, the list of I/O options includes simple parallel and serial I/O models, but the new Toshiba ICs offer serial bit rates as high as 2.5 Mbps. Moreover, the options include period input, pulse-count I/O, pulse-width output, quadrature input, and Triac output. Consider the declarations in Listing 4 to understand how Neuron C supports I/O on the Neuron IC.

LISTING 4

```
IO_7 input bit io_Occupancy;//Occupancy sensor IO declarations
IO_4 input quadrature io_dial;//light sensor IO declarations
```

The Neuron I/O pins are labeled "IO0" through "IO10" and "IO_7" and "IO_4" in Listing 4 refer to two of those pins. You can use the pins in combinations with some pins that can perform one type of I/O and others that can perform different schemes (Reference 1). I used only two models. I developed my device using NodeBuilder attached to a "Gizmo." The Gizmo sells for $395, works with LonBuilder or NodeBuilder, and attaches an array of switches, LEDs, seven-segment displays, and other assorted gizmos to the Neuron I/O pins. For my occupancy-sensor prototype, I used a simple pushbutton switch to simulate the input for a room sensor. In an actual product, you could attach an infrared, an ultrasonic, or another type of sensor component to such an input. The meaning of the "input" keyword is obvious, and the "bit" declaration specifies that the I/O model will simply deliver a one or zero value when the program calls the I/O object "io_Occupancy"

My simulated lux meter was slightly more complex. The Gizmo includes a shaft or positional encoder that the Neuron IC can read using the quadrature-input I/O model. The quadrature model can read such an encoder on "IO_4" using a dedicated counter/timer or on "IO_6" using a multiplexed counter/ timer. I used the shaft encoder as a simulated input for light level. In a real design with a light meter, you might replace the quadrature model with the A/D dual-slope input model or perhaps just a nibble or byte input. In my light sensor, "io_dial" was an object that delivered the variations of the shaft encoder.

WHEN TO USE THE "WHEN" CLAUSE

So, how do you handle the I/O in software? You might think of these I/O models as device drivers that you can call from Neuron C to handle I/O. But C still needs some help in handling such input and, for that matter, network-variable I/O. For just this purpose, Echelon

devised the "when" clause language extension. A Neuron C program
typically starts with variable and I/O object declarations, proceeds
with perhaps some initialization instructions, and then concludes with
most of the program consisting of a series of "when" clauses. For
example, consider the "when" clause I used to read the shaft
encoder in my prototype light sensor (Listing 5).

LISTING 5

```
when (io_update_occurs (io_dial))
{
  static signed long tempLux;
  tempLux+= input_value;
  currentLuxLevel=tempLux * 5;//scale reading
  if (Go_lux)//has minimum send time expired
  {
    if (currentLuxLevel > = 1000) nvo01LuxLevel= 1000;
    if (currentLuxLevel <=0) nvo01LuxLevel=0;
    if ((currentLuxLevel >0) && (currentLuxLevel <1000))
        nvo01LuxLevel=currentLuxLevel;
  }
}
```

The "when" clause calls the "io_dial" object. Whenever the shaft
position changes on the Gizmo, the Neuron executes the "when"
clause. Moreover, the "input_value" object is a predefined Neuron C
object that always delivers input data following a: "when" io
update_occurs()" clause. I arbitrarily scaled the input reading,
multiplying the value by 5, so that about three full turns of the shaft
encoder would generate readings from 0 to 1000 lux. My product
specification indicated that the light sensor should not exceed these
limits.

You use similar "when" clauses for all I/O and network-variable
inputs. For example, I had to use the following clause: "when
nv_update_occurs (nci01MaxSendT)" to accept changes to the
default heartbeat timer. Moreover, I used three software timers in
the design. The first one handled the 5-second debounce delay in the
occupancy sensor, and the other two handled the minimum- and
maximum-light-sensor timers. To see the complete source file for my
light and occupancy sensor, check the electronic version of this
article at www.ednmag.com.

IMPLEMENTING NODES

Once you have a working LonWorks device, even a prototype such as
mine, you can connect it to a network. We connected all of the
devices that the class designed using twisted-pair media. The
network also included a LonBuilder system and a PC that could run
the LonBuilder software or other LNS-based soft ware. You can use
LonBuilder to implement and configure a device with network-
variable bindings to other devices. The newer LNS-based LonMaker
tool, however, is simpler to use. Echelon built LonMaker on the Visio
(www.visio.com) drawing package. You can drag and drop shapes
representing LonWorks devices, just as you would use Visio to
manipulate shapes to create block diagrams. Moreover, you create
network-variable links using a connector between LonWorks objects,
just as you would connect blocks in a diagram.

We used LonMaker in an ad hoc network configuration, performing a
one-by-one identification of devices and FP objects within a device.

Once LonMaker identifies the devices and represents them as Visio shapes, performing the variable connections is simple, although we had only about 10 devices. A home-control network might not be much more complicated than our network in class, although commercial LonWorks networks can have thousands of nodes. LonMaker shines in such complex networks. You can work offline and carefully design a network using LonMaker. You can then go on site and wire the network. Once you wire the network, you can connect a PC with LonMaker to the network and quickly configure the network according to plan.

LonMaker or any other LNS-based configuration tool develops a database representation of both the physical network connections and the logical links between nodes. The database needn't be present during network operation, but the LNS-based tools use the database to download the appropriate address and variable maps to each node for the devices to interoperate as planned. (To fully understand LonMaker and LNS, you may want to download several white papers on the products from Echelon's Web site.)

Once you know how to use LonMaker, you may think that you are ready to start designing and installing networks. The LonWorks technology suite, however, encompasses a robust definition of a network, much like a TCP/IP stack does. LonWorks defines a domain with 32,385 devices. You can use multiple domains in large networks, and you can subdivide a domain into 256 groups to alleviate segment traffic. The most popular, lowest priced twisted-pair transceivers operate at only 78 kbps. It would be easy to consume all that bandwidth in a poorly designed and partitioned network, just as you can easily overwhelm Ethernet if you improperly segment an office LAN.

But, this news is mostly good. LonWorks allows you to design huge networks if that's your goal. You are just going to have to learn much more about network design and management. On the other hand, only Bill Gates' and similar houses will need more than one domain, and you could probably add a LonWorks network to a typical middle-class abode without concern for network traffic.

ADDRESSING THE COST ISSUE

The real issue for LonWorks in homes comes down to cost. LonWorks prices are too high for the general public, just like those for the Consumer Electronics Bus and X-10 light-control devices. Today, a decorator wall switch from Leviton costs around $5. A plain switch like most of us have at home costs less than $1. A Leviton LonWorks wall switch with a twisted-pair transceiver costs more than $ 100, and a light-and-occupancy sensor like the one I prototyped goes for more than $400.

You can attribute high prices partly to the chicken-and-egg syndrome: We need high volumes for prices to come down, and we need low prices for volumes to go up. But let's just assume that we can get past the volume problem. A LonWorks device needs a transceiver, a Neuron, and function-specific hardware. Toshiba's

newest Neuron ICs sell for $8 in sample quantities. Echelon claims
that you can buy a Neuron for less than $3 in high volumes.
Echelon's lowest priced transceiver, the FTT-10A, sells for $14 in low
volumes and perhaps as low as $5 (10,000). The price of a
LonWorks light switch simply won't soon go below $20 to $30. If you
simply compare LonWorks products with traditional products,
especially in areas such as lighting control and power outlets, the
cost barrier still appears insurmountable.

Now, having convinced you that LonWorks simply can't come home,
I'm going to argue that it ultimately can. LonWorks is succeeding in
commercial buildings, despite the cost, primarily because utility cost
is a significant factor for businesses' profit-and-loss statements.
Businesses know that paying up-front to automate a building can
generate savings in utilities.

It's harder to justify a home network based on today's utility bills.
You have to go far beyond lighting control to slash your power bill.
Moreover, utility companies have operated as monopolies and
haven't gone out of their way to present savings opportunities.
We've heard for years about automatic load management, but the
utilities have no incentive to deploy the technology. All they care
about is reading your meter without sending someone to your house.

The story is different in Europe, where the government has
deregulated the utility industry and companies have long been
sparring for customers. The competition has created opportunities
for saving money through home automation. A number of European
companies are selling LonWorks products, including lighting-control
devices, into the home market. In the United States, Leviton is the
only company with a significant LonWorks lighting-and power-
product line, and you have to go to the commercial portion of the
company's Web site to find the products. Expect the situation to
change, however, now that the US government has deregulated
domestic utilities. In the San Diego area, I get weekly junk-mail
solicitations for my power-needs business.

Still, utility savings alone won't drive LonWorks into the home. The
technology needs either lower prices or a killer application to justify
the price. The fulfillment of both needs is clear when you view the
technology from a system perspective. If you were building a house
or doing major remodeling, consider how you might wire the house.
With LonWorks you wouldn't need to run relatively expensive ac
wiring to wall switches. Instead, you could daisy-chain a twisted-pair
wire past every wall switch in the house. You can distribute dc power
to the LonWorks nodes via the same twisted pair that carries the
control data by using nodes equipped with Echelon's LPT-10 link
power transceiver that sells for about $3 more than the FTT-10A.
Moreover, a gang of wall switches could rely on a single Neuron and
transceiver. From a system perspective, the LonWorks installation
costs start to drop, and the value of a LonWorks network increases.

Remember our class project, which integrated a security and fire-
safety system into the network? Most of you probably have discrete
smoke and carbon-monoxide detectors around the house. With

LonWorks, you would have a cohesive fire-safety system. When you think about your family's safety, the value of a whole-house network increases. You can further stretch the system perspective when you consider a bridge between a LonWorks network and a data network and the Internet. Perhaps your fire-safety system could use that data bridge to automatically summon the fire department in an emergency. Many of you already pay for security services, and LonWorks with an IP bridge enhances the types of services available. Remember Sun's slogan: "The network is the computer." Until now, it didn't make sense to me, but, if you view the network capabilities in home control as a system, you see the killer application.

I believe that LonWorks will become the de facto standard for home control and automation, and I'm not alone. For example, even though Leviton markets its LonWorks products for commercial uses, the company's director of residential and commercial building automation, Dave Eckel, also serves as the chairman of the LonMark home and utility working group. Leviton even has some ideas about simplifying LonWorks installation for home uses. You could find the technology at the local hardware store in the not-too-distant future.

AT A GLANCE

LonWorks pros:

* The distributed architecture affords the ultimate in flexibility for connecting interoperable devices.

* The Electronic Industries Alliance has established LonTalk as a standard, and it will likely receive ANSI's blessings as well

* LonWorks Network Services software simplifies links between LonWorks and data networks including Internet Protocol support.

* Echelon has aggressively pursued interoperability with new technologies including Home API Universal Plug and Play, and Jini.

LonWorks cons:

* Transceivers, configuration software, and development tools are too expensive.

* LonMaker notwithstanding, network configuration is beyond the capabilities of the typical home owner.

* Retrofits can be problematic because distributed control mandates every device to be wired.

* Echelon acts and talks open standard but comes across as closed to many.

FOR MORE INFORMATION...

For more information on products such as those discussed in this article, circle the appropriate numbers on the Information Retrieval Service card or use EDN's InfoAccess service. When you contact any of the following manufacturers directly, please let them know you read about their products in EDN.

Cypress

1-408-943-2600 www.cypress.com Circle No. 310

Echelon

1-650-855-7400 www.echelon.com Circle No. 311

Leviton

1-800-323-8920 www.leviton.com Circle No. 312

Motorola

mot-sps.com/ Circle No. 313

Toshiba

1-800-879-4963, ext 214 www.taec-lon.toshiba.com Circle No. 314

SUPER CIRCLE NUMBER

For more information on the products available from all of the vendors listed in this box, circle one number on the reader service card. Circle No. 315

REFERENCE

(1.) Echelon's Neuron C Programmers Guide includes a complex chart (pg 2-24).

RELATED ARTICLE: THE ALPHABET SOUP OF THE WIRED HOME

Our electronics and computer industries have always loved acronyms and jargon, but things today are out of control. Consider the alphabet soup of organizations and technologies that claim to play in the home-networking arena. The list includes technologies for several home applications, including control networks, data LANs, entertainment, and communications, but, at first glance it's impossible to tell what are competing and what are compatible technologies. I can't promise this list to be exhaustive, but here's a quick summary of the wiredhome acronyms, technologies, and organizations.

CEBus and CIC (www.cebus. org): Consumer Electronics Bus and the CEBus Industry Council (see "Exploring CEBus home automation," pg 83).

HAVi (www.havi.org): Home Audio/Visual Interoperability group comprising eight manufacturers of consumer-entertainment products and driven by Sony (www.sony.com). HAVi seeks to define a home-network standard for audio-visual electronics that ensures that components such as digital-versatile-disk players, digital TVs, and set-top boxes will connect seamlessly and interoperate, regardless of the manufacturer. No technical reasons prevent such devices from including CEBus or LonWorks. However, it's unlikely these devices will include this support because HAVi's originators based it on IEEE 1394, which can carry both device-control data and multimedia streams, such as digital video. It's likely that the 1394 network will ultimately bridge to data and control networks in homes. The Home API group claims that its software layer will offer a software interface to HAVi and other technologies, and it's possible that components that support Jini or Universal Plug and Play (UPnP) might be connected to the same 1394 network.

HAPI (www.hapi.org): The Home API working group is establishing an open specification defining a standard set of services and application-programming interfaces for home control. The effort is purely software-oriented and presumably will allow compatible application software to work with a number of underlying control and entertainment networks, including CEBus, LonWorks, HAVi, and even data LANs. The PC industry and Microsoft (www.microsoft. com) are largely driving the effort, and initial development kits target Windows. The organization claims that the effort will eventually yield development kits for other operating systems.

HomePNA (www.homepna. com): Home Phoneline Networking Alliance is promoting installed phone lines in homes as media that can continue to carry voice calls and simultaneously carry data packets so that PCs can share peripherals and a single Internet connection. The HomePNA has established a 1-Mbps standard based on the HomeRun technology from Tut Systems (www.tutsys.com), and members of the group are shipping products. The group is now working on a 10-Mbps extension that will be backward-compatible with 1-Mbps products with the faster flavor largely based on Epigram (www.epigram.com) technology.

HomeRF (www.homerf.org): HomeRF working group is one of several initiatives targeting home LANs, although HomeRF also applies to wireless telecommunications via its Shared Wireless Access Protocol (SWAP) technology. HomeRF is proposing a wireless data channel in homes that would allow multiple computers to share peripherals and a single Internet connection and that would ultimately link phones, faxes, personal digital assistants (PDAs), and other devices. The group derived the 2.4-GHz, spread-spectrum communication scheme from the IEEE 802.11 wireless-LAN standard and simplified it to meet consumer price targets. SWAP, meanwhile, includes a derivation of the Digital Enhanced Cordless Telephone (DECT) standard, and DECT phones are in some cases as popular as wired phones in Europe. SWAP might ensure that the HomeRF's work lives in linking multiple wireless terminals or handsets to a single base station, even if the primary home LAN ultimately uses some type of wiring.

Jini (www.jini.org): A Sun (www.sun.com) initiative that, like UPnP, will allow devices to connect seamlessly in impromptu networks with no central repository of drivers or services. Sun based Jini (pronounced "Jeanie") on the Java programming language, and Jini devices link to one another using Java Remote Method Invocation. Sun targets typical computer peripherals, PDAs, cell phones, set-top boxes, and other convergence devices.

OSGI (www.osgi.org): Open Service Gateway Initiative (see "Shall we open the gate?" pg 88).

SWAP: Shared Wireless Access Protocol (see HomeRF).

UPnP (ww.upnp.org): Universal Plug and Play forum is defining a way to transparently connect appliances, PCs, and services by

extending Plug and Play to support networks, peer-to-peer discovery, and configuration. Like with Jini, a UPnP device carries its own device driver, allowing, for instance, a UPnP camera to discover and print to a UPnP printer on a network with no host or user handholding. Microsoft is the main player behind UPnP, but the company claims that the standard has no link to or dependency on Windows.

RELATED ARTICLE: LINKING CONTROL AND DATA NETWORKS

The Holy Grail of the wired home will surely be an all-encompassing network that joins all systems: control, entertainment, telephony, and data. It's almost inevitable that a Transmission Control Protocol/ Internet Protocol (TCP/IP) network will be the glue that binds the disparate parts of this network. You should probably plan for an IP connection for any control or home-automation project that you undertake.

Arguably, a software developer could write a custom program and link almost any control network to the Internet or another IP network. Today, a custom program might be your only choice with Consumer Electronics Bus (CEBus) networks, although expect that situation to change if CEBus gains popularity. Echelon, however, has added an IP stack to its LonWorks Network Services (LNS) software, which underlies LonWorks development tools and applications. Essentially, LNS 2.0, which Echelon announced in March, includes peer implementations of the LonTalk protocol and IP, allowing a simple bridge between control and data networks. Ultimately, this capability allows developers to deploy control applications on any computer that a LAN links to a control network, including systems that the Internet connects. (For a demo of Internet-based control, see www.echelon.com/demo.)

LonWorks developers that want to leverage control features in an application have several implementation choices. For Windows applications or any other environment that supports ActiveX controls, LNS allows you to bind ActiveX controls to LonWorks objects. Any ActiveX control you develop can control a LonWorks object from a directly connected PC or from across a network or the Internet. Echelon offers an optional dynamic-data-exchange (DDE) server that allows you to quickly link LonWorks objects to almost any Windows application. In my LonWorks evaluation, I linked a simple LonWorks network to Microsoft Excel using the DDE server. The configuration took a couple of minutes and resulted in my ability to monitor all nodes within an Excel spreadsheet or even chart the state of nodes on the network. Echelon has developed a similar interface using Java so that a PC that connects to a LonWorks network can expose network objects to non-Windows systems across a network.

Echelon has also been ensuring that LonWorks networks will easily meld with any of the emerging home-networking standards. The company has partnered and done demonstrations with Microsoft (www.microsoft.com) on Universal Plug and Play and Sun (www. sun.cum) on Jini. And perhaps Cisco (www.cisco.com) will prove to be its most important partner. Cisco intends to become a dominant

player in the market for home routers, which connect a home LAN to the Internet via a cable or digital-subscriber-line modem. Presumably, the Cisco and Echelon partnership could result in such a router that also links a LonWorks network, and you might see such a product on the market by early next year.

RELATED ARTICLE: NEURONS AND OTHER LONTALK IMPLEMENTATIONS

Depending on your perspective, the Neuron IC is either the rock-solid foundation of LonWorks technology or an underpowered processor that's seen better days and is sorely in need of replacement. Little doubt exists that the Neuron has helped ensure interoperability in LonWorks networks. By closely controlling the LonTalk protocol, Echelon and its semiconductor partners ensure compatibility. But a number of applications, such as backbones for control networks, simply need more processing power than even the new 20-MHz Neurons can deliver.

From its beginnings, Echelon relied on Motorola and Toshiba to supply Neurons. Cypress signed on just a few months ago, and Motorola's interest in the technology appears to have waned. For years, you had no choice other than a Neuron IC. However, LonTalk is now a published standard, and anyone could implement LonTalk on another processor. Adept Systems (www.adeptsystemsinc. com) did just that with a reference port to the MC68360 (www.echelon.com/Products/ Core/protocol/adept-f97.pdf). Adept also has the LonTalk stack running on Pentium-compatible [micro] Ps, although you must link the computer hosting the protocol to a LonWorks network using a LonWorks-to-Ethernet router.

No one has yet shipped a LonWorks product without using a Neuron IC. Echelon claims that few would want to because Neurons are so cheap. Business Development Director Reza Raji claims that most of the interest in other [micro] Ps has primarily come from applications such as set-top boxes to which a designer might want to add LonWorks support. Raji claims that dedicated LonWorks nodes can simply use a secondary processor when an application needs more power.

Raji's claims, however, ignore a couple of key problems. For starters, Neuron ICs process packets too slowly to match the maximum bandwidth of some of the LonWorks transceivers. Backbone-network segments could clearly use faster nodes, although you can potentially solve the problem using Ethernet to link LonWorks subnets. Second, the programming model Echelon supports in nodes with an auxiliary processor is perhaps unnecessarily complex. A modern processor could presumably host LonTalk and Neuron C, just as Neuron-based nodes do today.

Until Motorola indicated early this year that it would discontinue its LonWorks-product-development program, it appeared that the avenue was clear for moving LonTalk to other processors. (Motorola will still sell existing devices for several years.) Adept had completed the MC68360 port, and Motorola was planning a physical-layer

interface IC that could link the MC68360 and other processors to LonWorks transceivers. But Motorola canceled that and other LonWorks developments. Motorola gives no definitive reasons for its action, but, according to some in the industry, the company was unhappy with provisions in the LonTalk license. Although companies can port the protocol to new processors, Echelon's license insists that such ports be free to Echelon and other LonWorks developers. Meanwhile, Echelon has kept the Neuron LonTalk implementation a closely guarded secret.

Despite this shakeup in the LonWorks community, most of the news is bright for developers of home-control products. Neurons have plenty of muscle for most home applications. And Echelon's new partner, Cypress (www.cypress.com), may bring fresh ideas to the table. The company has discussed a Neuron IC with an embedded transceiver that could slash node costs. Moreover, Cypress is active in technologies such as Universal Serial Bus and 1394 that could prove symbiotic down the road.3

EDN
June 4, 1998

Home-automation networks mature while the PC industry chases a new home LAN.(local area network) (includes list of manufacturers of home networking products)

Author/s: Maury. Wright

Two types of networks are headed into the home. Control, or home-automation, network technology has finally matured enough to promise widespread deployment. Meanwhile, the PC industry is furiously pursuing new data LANs for the home. IC, card, and system vendors must choose the right LAN and meld it with the right control network.

In five years, expect the state-of-the-art home to be well-connected. A broadband pipe will provide the home with digital video and high-speed Internet access; one or more PCs will connect with the livingroom entertainment center; and one PC will sit at the center of a hybrid data, voice, video, and control network (Figure 1). The choices for implementing home-automation or control networks are stable and mature, but an inexpensive and foolproof LAN that can carry a variety of data types is still just a concept. But don't let this immaturity fool you. The biggest companies in the PC industry are fervently working on a new LAN for the home. The technology will roll out rapidly over the next 18 months, providing enticing opportunities for the entrepreneurs and designers that tap the right technologies and quickly bring products to market. Moreover, the technology will be equally applicable in some embedded systems with PC-industry volumes once again allowing designers to tap new technologies at low cost.

[Figure 1 ILLUSTRATION OMITTED]

The requirements for control and data networks differ substantially. A home LAN will require fairly high data rates to allow Internet access throughout the home along with file and peripheral sharing. Data rates must further escalate if the LAN is used to carry video streams. Control networks require very low cost so that the technology can be integrated into low-cost nodes, such as light dimmers, thermostat--seven toasters or irons. Fortunately, most control applications don't require data rates above 10 kbps, and several companies have developed reliable schemes to transmit such

data rates over a home's ac wiring. That ubiquitous power line also fulfills another major requirement of a control network: an easily accessible, essentially free physical layer or medium that can transport the control information.

Your choices in control-network technology come down to the. Consumer Electronics Bus (CEBus) and LonWorks. In some cases, other networks, such as Fieldbus have been used in factory or industrial, automation, and control applications. Only CEBus and LonWorks, however, meet the cost requirements of home-control networks. CEBus resulted from the traditional electronics-industry-standards process and has been published by ANSI and EIA as EIA-600. The CEBus Industry Council (CIC) is affiliated with EIA and now shepherds the standard.

Although Echelon created LonWorks, the technology is today arguably as open as or more open than CEBus. In fact, just this April, the EIA recognized the widespread usage of LonWorks and has published a new standard for home networking (EIA-709) based on the technology. LonWorks is much more widely supported today, achieving much of its success through factory- and building-control applications. Echelon asserts that there are close to 5 million installed LonWorks nodes. Meanwhile, CEBus proponents estimate the number of installed nodes at much fewer than 1 million. You can get copies of the specs for both standards from Global Engineering Documents (http://global.ihs.com). (See References 1, 2, and 3.)

In the past, most comparisons of CEBus and LonWorks have centered on each camp's assertion of superior physical layers. Today, both groups have reliable physical layers. You should chose one or the other based on the following criteria:

* Which technology, based on your own detailed analysis, will ultimately become ubiquitous or at least prevalent in your application

* Which software architecture best meets the needs of your application.

* Which available physical layer or combination of physical layers can fulfill your application requirements.

You should also consider a combination of other factors, including cost level of integration, installed base, and multivendor support.

Chasing a ubiquitous standard

Home automation and control are still waiting for a killer application, but proponents have never wavered in their belief that the technology will eventually pervade our lives. For this reason, choosing the eventual winning technology can be critical. At first, you might not think a single standard could be so critical. After all, when you as home owners want to automate lighting or heating and cooling, you can just make sure you buy interoperable products. Moreover, these products are just components, such as light

controllers, dimmers, and outlets.

Think for a moment, however, about some examples provided by
Grayson Evans, a long-time home-automation proponent and owner
of The Training Department, a CEBus consulting company. Evans
envisions an iron that automatically shuts off when you leave your
house. It turns out that the ironers of the world aren't thrilled with
models that shut off after 10 or minutes of inactivity. If you get
interrupted by a phone call while ironing, you might return to a cold
iron. An automated iron could shut off when you arm your home-
security system, when you lock an automated door lock, or even
when you remotely close your garage door from your car.

Evans also points out that some devices would naturally benefit from
the capabilities in other devices. For example, you could have one
matter clock in an entire house. The clock could be super-accurate
because It could be updated by precise time data broadcast via cable
TV, satellite video dream, or even a low-cost Global Positioning
System (GPS) receiver that deciphers only the time data that's,
constantly broadcast by GPS sattelites. This master clock would then
broadcast the time via a power-line network. Appliances, such as
microwave ovens, VCRs, and even clock radios, would always have
the accurate time and receive automatic updates during the
transitions between standard and daylight-saving time.

Evans' scenario may never come to fruition. It's clear that iron or
toaster manufacturers won't add support for a control network
unless there is a ubiquitous standard. Without a standard,
consumers may automate lighting or heating and cooling, but they
will not reach the full potential of home automation.

Comparing software schemes

Despite the importance of a universal home-automation standard,
you may not be able to pick a winner. You may need to choose a
technology based on the software architectures. Both CEBus and
LonWorks leverage a peer-to-peer architecture and rely on relatively
simple network protocols implemented on microcontrollers.

Echelon developed the LonTalk protocol and made deals years ago
with Motorola and Toshiba to develop Neuron ICs to host LonTalk.
Both semiconductor vendors have developed several generations of
Neurons that typically integrate two microcontrollers that handle the
LonTalk protocol and leave a third microcontroller available for node
tasks. Complex nodes can require an additional [micro]P or
microcontroller. Echelon reasoned that the Neuron approach virtually
guaranteed 100% LonWorks compatibility, and every LonWorks node
shipped to date includes a Neuron IC. The latest Neuron ICs cost
around $6 (1000), with some versions selling for as little as $2 in
very high volumes.

The CEBus spec, meanwhile, simply defined the protocol stack,
allowing anyone to deploy the network on a microcontroller. You can
buy development tools that allow you to deploy CEBus on an 8051 or
68xx microcontroller from companies such as Intellon, Domosys, and

ACS. A complete development environment can cost around $2000, and you can use the tools to develop node functionality as well. The CIC also recognized the need for compatibility and has established a testing program that can verify that a product complies with the CEBus standard.

Now that LonWorks has become an EIA standard, Echelon also recognizes that some designers might want to host the LonTalk protocol on a [micro]P of their choice. Anyone can do so now that the standard is published. Echelon is working with a partner and hopes to offer a reference implementation this year. You needn't worry about LonWorks compatibility, however, because the LonWorks community in 1994 beat CIC to the punch and established the LonMark Interoperability Association. The group has around 200 members, and its many functions include conformance testing.

The LonMark group has been defining common contexts or data structures that allow products from different vendors to communicate. The CIC garnered even more recent publicity with its Home Plug & Play specification, although the LonMark effort predates it by several years. Both work similarly. For example, the CIC has defined several categories of products including security, lighting, heating/cooling, consumer electronics, convenience (garage-door openers for example), user interfaces, and others. Within each category, CIC has also published contexts that guide node operation. Each context can include a number of objects or data items for input, output, or I/O. Objects can be binary, such as on or off, or more complex, such as inside temperature or inside humidity. More complex objects require an analog value. The contexts allow even unlike products to listen for and react to network broadcast of status contexts.

To develop a CEBus node, designers must extend the network protocol stack with the appropriate contexts. The node must also be capable of sending command strings based on the object-oriented Common Application Language (CAL) defined in the CEBus specs. Intellon, Domosys, and ACS offer tools that help you implement CAL. LonWorks lacks such a fully specified command language, but programming for LonWorks nodes is typically less complex than it is for CEBus nodes.

Network protocols and services

Differentiating LonWorks and CEBus software can become difficult. LonWorks offers a more robust protocol with more options for guaranteed delivery of control packets, low-latency delivery services, and support for much larger networks. However, some of the advantages may not affect home applications.

CEBus promises to be simpler to configure. The Home Plug & Play spec defines fairly complex node-design procedures that will allow a consumer to buy products from different vendors and install them with no master controller on the network. For example, you could buy a light-dimmer control module and connect it to the power line, and the module would essentially publish a status as a controller

over the network. You could then connect a dimmer-capable light fixture that would request a compatible controller and bind to the unattached dimmer module. CIC is sure that this scheme will work as consumers incrementally add CEBus modules, but for practical purposes, the home will need a master controller.

LonWorks networks can also work without a controller, but they do require a controller for initial configuration. LonWorks nodes feature more intelligence than CEBus nodes. For example, LonWorks nodes can respond to an inquiry from a controller with an address and a list of device capabilities. Essentially, LonWorks configuration relies on the LonWorks Network System, a multiple-client, multiple-server network operating system that's optimized for configuring control networks. In large networks, such as commercial-building networks, you can use multiple LonWorks controllers simultaneously on one network.

But don't misconstrue LonWorks as too complex for a home application. Echelon points out that building electricians regularly configure and maintain control networks with thousands of nodes. As an example of how simple LonWorks; configuration can be, consider LonMaker software for Windows. LonMaker is a new, highly customized version of the popular Visio (www.visio.com) technical drawing program. LonMaker can use the inquiry capabilities of LonWorks to take an inventory of every node on the network and present each node as a Visio object. You can then graphically manipulate the LonWorks nodes on screen and connect or bind the desired sensors and actuators. Once configured, the LonWorks network will operate without the PC. LonMaker costs $895 and includes a full copy of the technical version of Visio.

The only potential disadvantage of LonWorks software is its tie to the LonWorks network. The CIC has succeeded in separating CAL and all of the control contexts from the CEBus physical layers. In fact, the CIC is promoting CAL as the language for control no matter how you choose to transport the commands.

Control network physical layer

It's likely that the software environment will heavily influence your choice in control-LAN technology, but you may need to consider the physical layers available for CEBus and LonWorks. You could certainly compare the under lying physical-layer technologies, such as wideband versus narrowband transmission on power lines, but you will most likely find today's physical layers reliable. You will benefit most from a physical layer or combination of physical layers that meet your application requirements.

The CEBus standard defines five physical-layer choices for twisted-pair, power-line, coax, RF, and infrared media. The standard also includes a place holder for a fiber-optic medium that's not fully defined. All of the physical layers support 10-kbps data rates. To date, only power-line and RF products are widely available. Intellon offers the broadest group of products. Intellon ICs, including the P200, implement the basic network services and include a power-line

transceiver. These ICs sell for as little as $2.50 (10,000) and require an external $1 (10,000) amplifier IC to connect to the power line. They also include a serial interface for communications to a meanwhile, has ICs that integrate a microcontroller with the transceiver and sell for around $10 (1000). RF products are far more costly Amnet Data comm offers radio front ends for around $100 (1000) that work with Intellon ICs. Intellon also offers powerline and RF evaluation kits for $199 and $299, respectively.

Echelon's abundance of physical-layer choices could be an advantage or a disadvantage. For example, the company's three power-line physical layers work at 2, 5, and 10 kbps, and each use different transmission technologies. You may have an application that requires such a choice, but having only one choice may speed the search for a ubiquitous standard. Echelon claims the 5-kbps physical layer will be the likely choice for home networks; a transceiver costs less than $15, depending on volume. You can't directly compare CEBus and LonWorks transceiver costs, however. Echelon packages its products in a module that includes all the discrete passive components. With Intellon's ICs, you have to add the discrete components on a pc board. Echelon points out that several companies sell end products that use the 5-kbps physical layer and cost less than $30.

Echelon also offers many other physical-layer choices, including 1.25-Mbps twisted-pair schemes. The company has developed dozens of modules that combine Neuron ICs and transceivers, modules that bridge physical layers, and even box-level bridges and routers. Echelon doesn't preclude other companies from making competing LonWorks transceivers. One company even developed a transceiver to run a LonWorks network over an electric fence. See Echelon's Web site for links to transceiver vendors that support specialty and standard physical layers. It's also interesting to note that the control network hatched within a company essentially has an open physical layer, but a vendor that wants to offer an EIA-hatched CEBus power-line transceiver must negotiate a license with Intellon.

Waiting for the killer app

While control-network technology has been maturing, consumers as well as appliance and consumer-electronics vendors have been waiting for a compelling application before adopting the technology. Many have speculated that power-demand manage Went might spur the market. Power Utilities could provide input to an automated house-hold, allowing power-hungry appliances to operate when the overall demand for power is low. The power companies would discount power rates to such customers. Power companies have tested and sparsely implemented demand management and automatic meter reading, but these haven't proven to be the awaited killer application.

The PC industry believes that broadband Internet access and home-data LANs can spur the home-automation market. You would certainly want to bridge the control network and data LAN in a wired home. In fact, the Internet provides the persistent data link that

home-automation proponents have long envisioned a part of home-automation and control applications. For example, a relative could arrive at your home while you're at work. When the visitor rings the doorbell, your control-network security camera could capture an image of the visitor, and the data LAN could transfer the image to your office via the Internet. Upon recognizing your visitor, you could send a command to the control network to open the front door. The same scenario could catch intruders breaking in or allow you to preheat your spa before leaving the office.

Ultimately, however, the PC industry wants to promote multiple-PC homes and even PC technology in the living room. This isn't just a marketers' pipe dream. Studies show that consumers buying a second PC account for an increased percentage of sales. just as LANs proliferated in offices, consumers will want to share files and peripherals in the home. The proponents of home LANs ultimately view Internet access; throughout the home as a killer application. You certainly would want Internet access at every PC, but you might also need access from Internet phones, fax machines, and set-top boxes.

A home LAN will have to carry a variety of traffic that only starts with typical IP-based data. You can envision audio and even video streams traversing a house via a home LAN. Two primary obstacles stand in the way of LANs in the home. First, homes aren't wired for LANs and therefore require expensive custom wiring before LAN installation. Even a low-cost LAN cannot make up for the high cost of custom wiring. Second, LAN software--even a simple Windows LAN--is too complicated for the average consumer.

The potential physical-layer or media choices for home LANs may surprise you. Industry groups are championing RF, power-line, and phone-line physical layers, attempting to avoid the need for retrofit wiring. Surprisingly, near-term technologies will deliver relatively high data rates over these channels. Other industry groups believe the need for a home LAN to carry digital video will require a new long-cable version of 1394. Perhaps, the home of the future will use a hybrid of LAN technologies.

Market leaders, such as Microsoft (www.microsoft.com) and Intel (www.intel.com) are now focusing on "no-new-wires" initiatives for home LANs. Each of the potential mediums has advantages and disadvantages. RF technologies offer the ultimate in flexibility, allowing support for untethered devices, such as handheld PCs or remote controls, but today's RF LANs don't come close to consumer cost requirements. Power-line access is practically ubiquitous, with outlets located at 8-ft intervals along walls throughout most houses. Most proven power-line communication schemes, however, operate at approximately 10 kbps rather than the approximately 1 Mbps of LANs. Phone wires offer the simplest technical challenge and therefore reasonable cost, but phone wires aren't available in every room in many houses. A phone outlet might be unusable just because it's on the wrong side of a room.

Intel's networking business group has decided to focus on power-line

LANs. Dan Sweeney, manager of Intel's home-networking business unit, asserts that only power-line LANs meet the cost and accessibility requirements of home LANs and that consumer demand will place the maximum cost of a home LAN at $200 to connect the first two nodes. You can find several white papers and presentations on home networking at www.intel.com/home/ network/index.htm. The material primarily describes the market and its requirements but may be the best and most easily accessible source for market data. Intel claims that home LAN could be a $1 billion market in five years. Intel does not provide details of its powerline technology, other than to say that 10-Mbps; rates appear feasible and that it can meet the cost requirements of the consumer market. The company envisions widespread availability next year. Sweeney also insists that the result of Intel's work will be open and available for OEMs' use, although no other OEMs are publicly collaborating in the powerline effort.

Judging from other power-line communication technologies, Intel could face a tough challenge. The control network vendors haven't pushed powerline rates past 10 kbps, and several previous power-line LAN start-ups have folded. Adaptive Networks has had the most success developing faster powerline physical layers and offers ICs and power-line modems that can achieve 100 kbps. Such modems, however, cost more than $2000. Adaptive Networks also claims to be developing a lower cost home LAN and believes it can boost rates to 3 to 5 Mbps.

In the short term, you may be limited to home LANs that run over phone wiring. Microsoft and Tut Systems are championing this technology (Figure 2). Microsoft's endorsement of Tut's technology appears to be based on the technology's near-term viability. In July, Tut will begin shipping the HomeRun family of products. These products essentially use an Ethernet MAC (media-access controller) with a phoneline physical layer. The HomeRun physical layer becomes just another Ethernet physical-layer choice along with thin coax, 10BaseT, and Fast Ethernet. Initially, HomeRun products will support 1.3-Mbps rates over home phone wires, despite the prevalent free-form topology with numerous wiring stubs. The company asserts that HomeRun will work reliably, provided that less than 500 ft of wiring exists between any two nodes. The HomeRun transmission: is frequency-isolated from the analog phone voiceband, so the wiring can simultaneously support voice and data. Tut claims its technology will also coexist with xDSL links into the home via phone wires.

[Figure 2 ILLUSTRATION OMITTED]

Tut will offer HomeRun network-interface cards, ICs that integrate an Ethernet MAC with a HomeRun physical layer, and stand-alone physical layers that work with other Ethernet MAC ICs. The network-interface cards sell for $140--not an unreasonable introductory price for a brand-new technology. The company claims that PC vendors will be able to ship HomeRun support in new PCs for less than $50 and ultimately see the price approaching $10. AMD began supporting Tut's technology in early May. The semiconductor vendor licensed

HomeRun and will offer compatible ICs with all of its other Ethernet products.

Tut isn't the only company focused on phone wires. Start-up Epigram also plans to offer an Ethernet-like LAN with a phone-line physical layer. Epigram, however, believes that 10-Mbps rates are an absolute requirement for market success and plans to delay a product announcement until the company can economically reach that rate. Expect an announcement this year. Tut systems is also planning a 10-Mbps upgrade to HomeRun but indicates that a low-cost, shippable implementation might be two years away.

RF cost may hamper market

Meanwhile, RF LANs are shipping in volume in business applications. Network-interface cards that comply with the new IEEE 802.11 wireless-LAN standard typically cost around $500. Businesses are happy to pay that price to solve a difficult wiring problem or increase productivity. Restaurants are equipping servers with wireless-LAN units to take orders and transmit them to the kitchen. Unfortunately, the $500 price doesn't meet consumer demands.

The Home Radio Frequency Working Group (HRFWG, www.homerf.org), an industry coalition, is pursuing a low-cost RF LAN that can carry data and voice. The HRFWG consists of PC market leaders Compaq (www.compaq.com), Intel, and Microsoft, as well as leading companies from the networking and telecommunications markets. The group hopes to publish a specification this fall that defines a spread-spectrum RF physical layer, a MAC, and the Shared Wireless Access Protocol (SWAP). SWAP will allow companies to design interoperable products, such as wireless-phone base stations with multiple handsets. The protocol will also be key to phone-call processing, such as unified messaging and call forwarding. At the same time, SWAP will allow Internet access from all linked nodes ranging from Internet phones to PCs.

The HRFWG borrowed from two established standards to create its MAC, physical layer, and SWAP specifications. The MAC and physical layer are essentially feature-reduced implementations of 802.11. The physical layer adopts the frequency-hopping spread-spectrum flavor that is one option in 802.11. The HRFWG will loosen oscillator and filter tolerances and support a range only equal to a typical home and yard. Meanwhile, the SWAP spec borrows heavily from the DECT (Digital European Cordless; Telephone) standard for wireless-phone systems and local loops.

Proponents believe that by early next year the HRFWG work will yield a low-cost LAN capable of 1- and 2-Mbps rates. By then, the coalition predicts, IC vendors will offer compliant chip sets with a bill-of-materials cost of $20--the cost from antenna to digital bits.

Unfortunately, none of these home LAN alternatives affords the data rates necessary to carry digital video streams. Yet, almost any view of a wired home of the future includes digital video delivered by satellite, cable, or digital versatile disk. Consumers will need a way

to move those streams between livingroom entertainment devices and also to other rooms with TVs or digital VCRs. Moreover, the modem PC enables video editing, so the PC needs to be connected as well.

The IEEE 1394 or Firewire standard solves the video-transport problem in the living room. The interface can carry data as fast as 400 Mbps with faster versions on the way. Unfortunately, 1394 supports only 5m-long cable between nodes, so the standard is unsuitable for use throughout the home. However, there is yet another industry' group with ideas about a future home LAN. The Video Electronics Standards Association (VESA), which is responsible some graphics-related PC standards, has formed the VESA Home Network Committee. It turns out that the manufacturers most concerned with a video-capable home LAN, such as consumer-electronics companies, were also active VESA members.

VESA's vision of the home LAN runs slightly contrary to the "no-new-wires" mantra repeated by Intel and Microsoft at recent developers events. It's obvious that a video-capable home LAN will require some new wiring. VESA considered several communication technologies, including Fast Ethernet, that could be routed over Category 5 twisted-pair wiring. The committee decided to develop a new physical layer for 1394 that could support long cable runs and a star topology. The committee chose a new version of 1394 rather than Fast Ethernet because 1394 inherently supports isochronous services for video streams. Still, VESA home network nodes will be Internet Protocol (IP)-based.

In VESA's scenario, the new version of 1394 will serve as a backbone network for the home (Figure 3). The backbone will connect to broadband access networks via xDSL, terrestrial cable, or satellite. Inside the home, it will connect to what VESA terms "component networks." These networks could include home automation and control networks analog plain-old-telephone-system phones, traditional analog TVs, and next generation digital TVs and VCRs. VESA doesn't preclude the powerline, RF, and phone-line LANs from connecting to the backbone as an auxiliary LAN.

[Figure 3 ILLUSTRATION OMITTED]

Unfortunately, VESA's backbone is chronologically the farthest from reality and surely the most expensive approach to home LANs. Still, the committee hopes to have a spec available late this year. It is also working on a software spec for device control that lies on top of the IP network stack. The committee is considering borrowing CAL from CEBus arena. CAL includes support for data channels and could easily serve as a software standard that allows VCRs, TVs, camcorders, and PCs to communicate. Some members of the committee would prefer to adopt a much less robust command set that Sony (www.sony.com) developed strictly for audio-visual devices. VESA may ultimately support both approaches. The consumer-electronics companies may come to realize that CAL provides far more capabilities and moves the homeautomation industry along at the same time.

Simplifying LAN software

Regardless of which LAN technologies make it to the home, it's clear the industry will need software that's much easier to configure than Windows 95 or even Windows 98. Microsoft has pledged to develop software layers that reside on an IP LAN that implement network plug-and-play. Currently, a user must enter data in more than 30 fields to configure a Windows LAN. Experienced users may find it trivial, but average consumers will find it impossible. Error messages use arcane terminology that can baffle even experienced users. The success of the home LAN may hinge on Microsoft's reducing the configuration of each node to a few steps with straightforward questions.

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Recall of Television Commercials as a Function of Viewing Context: The Impact of Program-Commercial Congruity on Commercial Messages.(Statistical Data Included)

Author/s: Andrew Sharma

ABSTRACT. The effect of the congruity between the involvement types of advertising commercial and a television program on the effectiveness of the commercial was studied. Participants (N = 103) viewed either a cognitive or an affective commercial for a product, which was embedded in either a cognitive or an affective television program. The results showed that the effects of the congruence influence the impact on memory. Free recall and cued recall were significantly influenced by the program--commercial congruity. Free recall and cued recall were significantly higher for the cognitively involving commercial in the cognitively involving program context than in the affectively involving program context. Similarly, free recall and cued recall were significantly higher for the affectively involving commercial in the affectively involving program context than in the cognitively involving program context.

Key words: program--commercial congruity, recall of television commercials

THE MAJOR INTENT OF ADVERTISING is to influence brand attitude formation or change by conveying to the consumer some specific concept about the product. The extent to which the consumer's attitude and choice will be influenced depends on the individual's attention to learning and his or her retrieval of the message's contents. An advertising message is in competition with other stimuli, which include both other advertisements and the program itself. Because competition from other advertisements is virtually unavoidable, advertisers try to enhance the effectiveness of their advertisements by positioning the right type of commercials within the proper program context.

The context in which an advertisement appears has long been thought to influence the effectiveness of the advertising message. Some early studies (Axelrod, 1963; Barclay, Doub, & McMurtrey, 1965; Barry, 1962; Crane, 1964; Schwerin, 1960; Steiner, 1966) have produced evidence for this. For example, Schwerin (1960)

found that attention to a pair of commercials was influenced by position, the first position having an impact on gaining and sustaining attention for both commercials. Axelrod found that the mood induced by a program influenced the attitude toward the product in the advertisement. Barclay, Doub, and McMurtrey showed that commercials appearing in higher rated programs were recalled better by viewers than were commercials in lower rated programs.

Over the past 30 years, the study of television context effects has rapidly expanded (Schumann & Thorson, 1987; Singh, Churchill, & Hitchon, 1987). However, the research has been characterized by competing frameworks, disagreement about definitions of the critical variables, and diverse methodologies (Schumann & Thorson, 1990). Various theories have been proposed to explain and predict program context effects. For example, Axelrod (1963) applied the structural theory of attitudes, Goldberg and Gorn (1987) employed a mood congruency hypothesis, Krugman (1983) used the spill-over hypothesis, Mattes and Cantor (1982) and Singh et al. (1987) employed the excitation transfer theory (Zillman, 1971), and Schumann and Thorson (1990) developed a selection processing model to explain the carry-over effects from program to commercials.

On the basis of these various theories, researchers have also used context variables to explain the effectiveness of commercials. Variables such as program genre (Schwerin, 1958; Schwerin & Newell, 1981; Siebert, 1978), attitude toward program (Clancy & Kweshkin, 1971; Krugman, 1983; Smith, 1956; Steiner, 1966; Thorson, Reeves, & Schleuder, 1985), viewer excitement (Singh et al., 1987), program arousal and hedonic tone (Mattes & Cantor, 1982), involvement with program (Kennedy, 1971; Leach, 1981; Park & McClung, 1986; Soldow & Principe, 1981), and program-- commercial congruity (Bello, Pitts, & Etzel, 1983; Hansen, Barry, Reed, & McGill, 1976; Horn & McEwen, 1977; Murphy, Cunningham, & Wilcox, 1979) have been used.

Although some of the prior questions on the effects of the program context on commercial effectiveness have been addressed, most of the prior work on the effects of the program content on commercial effectiveness has failed to explicitly address the issue of program involvement. Researchers have often selected program types expecting them to be at different levels of involvement. For example, in Crane's (1964) work, the assumption was made that for men, a Western program would be more involving than a quiz show and for women, a quiz show would be more involving than a Western. Similarly, Schwerin (1958) assumed that dramas would be more involving than musicals. Kennedy (1971) assumed a situation comedy to be less involving and a suspense thriller to be more involving. Although some of these assumptions would seem to have face validity, there has been no consistency in the findings. Burke Marketing Research (1978) found that commercial recall scores by program types (dramas, movies, comedies, etc.) were relatively close to one another. Yuspeh (1979) examined Burke's results and found that the same commercial rendered different recall scores from different shows of the same type. Furthermore, there is the

issue of whether similar programs can be grouped into similar types. Factor analytic studies of program type classifications have resulted in inconclusive findings (Ehrenberg, 1968; Frank, Becknell, & Clokey, 1971; Gensch & Ranganathan, 1974; Kirsch & Banks, 1962; Wells, 1969). The point to be noted, then, is that the level of involvement may be program specific rather than a function of program type (Soldow & Principe, 1981). In other words, although it is conceivable that a person's level of involvement is high in a particular episode of a suspense thriller, it is also conceivable that a person's level of involvement is high in a particular episode of a situation comedy (or any other program type). Similarly, it can be argued that a person could be less involved in some particular suspense thriller or situation comedy or any other program type. This could explain Yuspeh's (1979) findings, considering the fact that the level of involvement was never manipulated but assumed to be different, based on the program type. Therefore, the level of involvement should be considered with respect to a specific program episode rather than assuming that the same level of involvement applies invariably to all programs within a type. In this study, two programs were chosen and the level of involvement was experimentally manipulated through specific instructions rather than arbitrarily assuming the level of involvement.

Even with the inclusion of the involvement variable, conflicting results have been found. Much of the survey literature reflects a consistent positive relationship between commercial recall measures and viewer involvement (Clancy & Kweshkin, 1971; Krugman, 1983; Leach, 1981; Priemer, 1983; Smith, 1956). In contrast, most experimental research findings suggest that viewer involvement with the program inhibits commercial recall (Bryant & Comisky, 1978; Kennedy, 1971; Soldow & Principe, 1981; Thorson & Reeves, 1985; Thorson et al., 1985). This could be a result of the fact that the conceptualization of the involvement variable has been inconsistent. Involvement has been conceptualized in terms of intensity of information processing (Krugman, 1966), need for closure (Kennedy, 1971), and suspensefulness (Soldow & Principe, 1981), among others. All these conceptualizations assume the difference in outcome among participants at two different levels of involvement-- high and low. However, by relying on such conceptua lizations, one can only capture partial aspects of the complex effects of the involvement construct because several different involvement- mediated processes can exist at a given level of involvement. All of these processes may render the same outcome, or several outcomes can be revealed by consumers at the same level of involvement.

Criticizing the previous conceptualizations of involvement as inflexible and partial, Park and Mittal (1985) defined involvement as a goal-directed arousal capacity, and they proposed further that involvement should be viewed in terms of the arousal capacity that will be activated when goal accomplishment is at stake rather than the absolute level of arousal. Deviating from the conceptualization of involvement, which mainly discusses the relationship of the message or issues to the person's attitudinal position, Park and Mittal expanded the involvement construct by adding involvement types-- cognitive and affective. Park and Mittal proposed two primary

motives underlying involvement within the persuasion context--
utilitarian and value-expressive motive. According to them,
consumers may be highly involved in a message not only because of
the relevance of the issue but also because of the emotional quality
of the message. Specifically, in an advertising context, one may be
highly involved in a commercial to fin d out the functional
performance (utilitarian motive) of a product or service in the
commercial, or one may be highly involved in the commercial
because of its aesthetic or emotional appeal to express one's
actual/ideal self-image to the world (value-expressive). Accordingly,
Park and Mittal characterized cognitive involvement by utilitarian
motive and affective involvement by value-expressive motive. In this
study, involvement has been conceptualized on this basis and
congruity between program and commercial studied within this
context.

Involvement, Program Context, and Commercials: Related Empirical
Findings

Are commercials within highly involving programs more effective or
less effective than commercials within less involving programs?
Researchers have addressed the question, but the findings are
mixed. For example, Bryant and Comisky (1978) and Soldow and
Principe (1981) found that commercials are less effective within
more involving programs than within less involving programs.
Krugman (1983), on the contrary, found that commercials within
more involving programs were more effective than commercials
within less involving programs. These studies, however, incorporated
only the level of involvement as the predictor variable and did not
distinguish between the type of involvement with the program and
the type of involvement with the commercial. Based on the results of
the study on involvement by Park and Young (1983), McClung, Park,
and Sauer (1985) argued that there may be an interaction between
(a) the viewer's level and type of involvement with the program and
(b) the type of commercial, which might influence the effectiveness
of the commercial. This supports Park and Mittal's (1985) view of the
motives underlying the selection of a television program. If the
motive is cognitive, one watches a television program to gain
knowledge about a particular subject matter, to examine one's
perspective relative to others, and to entertain one's intellectual
curiosity. When the motive is affective, the reasons for watching a
television program are essentially aesthetic in nature and are based
on the appreciation of the program for its own sake apart from any
utilitarian function it may perform. This selection of the program
creates a definite mind state from priming of the individual through
the program (Seamon, Brody, & Kauff, 1983; Yi, 1990). Hence, if the
content of the commercial message is in congruence with the
program content, then one can expect a higher degree of learning
and recall; if there exists a state of incongruence between the
commercial content and the program content, then one can expect
learning and reca ll to be inhibited.

Based on the theoretical and empirical works of McClung, Park, and
Sauer (1985), Park and McClung (1986), and Schumann and
Thorson (1990), among others, the conceptualization of the

congruency effect is illustrated in Figure 1. The effectiveness of the commercial increases when there is congruency between the program and the commercial. A cognitively based commercial is expected to be more effective when the viewer is cognitively involved (at any level of involvement) with the television program. Similarly, an affectively based commercial is expected to be more effective when the viewer is affectively involved (at any level of involvement) with the television program. However, the congruency effect is most pronounced at a moderate level of involvement. When the involvement level is low, a person experiences only incidental learning (Krugman, 1965); there is a mere exposure effect (Batra & Ray, 1983; Zajonc, 1968; Zajonc, Markus, & Wilson, 1974) from passive exposure to a cognitively or affectively based comme rcial, irrespective of the viewer's type of involvement with the television program. When the level of involvement increases from low to moderate, the congruency effects become more enhanced and the difference in advertising effectiveness between cognitive and affective involvement conditions is at its greatest level. When the involvement level is high, the viewers will attempt to process increasing amounts of information and approach their limit of information processing capabilities (Bryant & Comisky, 1978; Schumann & Thorson, 1990). In the case of high cognitive involvement, the heavy processing demand creates a cognitive overload and the viewer may start to block out the commercials to alleviate the strain (McClung et al., 1985). In the case of high affective involvement, the emotional arousal created from the program makes it difficult for the viewer to get involved with the commercial, thus interfering with the information processing (Park & McClung, 1986).

Thus, involvement is an important factor, but past research on contextual effects has not identified and studied the two facets of involvement completely. Also, because high involvement with the program has a mitigating effect on the participants' involvement with the commercials and the greatest amount of commercial processing seems to be at a moderate level of involvement with the program, this study examined the influence of the type of program involvement (cognitive and affective) on the persuasion effects of commercials (cognitive and affective) with a moderate level of involvement with the television program.

Hypotheses

Two experimental hypotheses were advanced. At moderate levels of involvement,

1. Free recall and cued recall will be higher for cognitively involving commercials in cognitively involving program contexts than in affectively involving program contexts.

2. Free recall and cued recall will be higher for affectively involving commercials in affectively involving program contexts than in cognitively involving program contexts.

Method

Experimental Design

The experimental design was a 2 x 2 factorial model (Program Type x Commercial Type) employing two types of program involvement (program type: cognitive or affective) and two types of commercial involvement (commercial type: cognitive or affective) at a moderate level of involvement. The participants were randomly assigned to one of the four experimental conditions: (a) cognitive commercials/cognitive program; (b) affective commercials/affective program; (c) cognitive commercials/affective program; (d) affective commercials/cognitive program. The two types (cognitive and affective) and the level (moderate) of viewer involvement with the program were manipulated through the content of the program as well as by the instructions given to the participants. The participants in the cognitive groups were asked to come to a basic understanding of the issue being presented by processing the information. Participants in the affective groups were asked to role play through identification or projection into the characte r's situation. The commercials' effectiveness was measured by free recall (participants were asked to list the brand names of the products) and cued recall (participants were provided with categories of the commercials and asked to list the brand names).

Manipulation Check Measures

Tests for randomization of participants across the experimental groups were measured by the participants' level of interest in watching television programs of different genres on a 7-point semantic differential scale ranging from very interested to very uninterested. To measure the type and level of involvement with the program and commercials, items from Zaichkowsky's (1985, 1987)

Personal Involvement Inventory and McQuarrie and Munson's (1987) Revised Personal Involvement Inventory were used. McQuarrie and Munson (1987) combined Laurent and Kapferer's (1985a, 1985b) scale with Zaichkowsky's (1985, 1987) Personal Involvement Inventory (PII) to form the Revised Personal Involvement Inventory (RPII). The PII was demonstrated by McQuarrie and Munson to have content validity, construct validity, criterion-related validity, and reliability, and in a later study, Celuch and Evans (1989) found the PII to have convergent and discriminant validity. The items consisted of 7-point semantic differential descriptors rela ting to important/unimportant, exciting/unexciting, means a lot to me/means nothing to me, uninteresting/interesting, irrelevant/relevant, matters to me/doesn't matter to me, which are traditional measures of the level of involvement and significant/insignificant, informative/uninformative, aesthetic/not aesthetic, superficial/vital, appealing/unappealing, made me think/did not make me think, exciting/unexciting, which measure the involvement type.

Materials

The television program segments and the commercials were selected

by three judges. The involvement types were defined by the motives for watching the program and the commercials: The cognitive motive was defined as utilitarian--a desire to gain knowledge when the information processing is mainly cognitive; and the affective motive was defined as value-expressive--a desire to express one's self-image when the information processing is mainly affective. The judges were asked to view segments from six programs and six commercials and evaluate them on the basis of the involvement types--cognitive or affective. A dichotomous yes/no scale was used with an open-ended question for comments on their evaluation. It was recognized that television programs and most commercials are not clearly cognitive or affective; hence, the selection was based on the assumption of dominant rather than exclusive message characteristics. The cognitive program selected by the judges was a 15-min segment from a news/current affairs progra m, and the affective program was a 15-min segment from an evening drama. The selected commercials were for a hair-care product (shampoo). The cognitive commercial contained information about the product attributes and featured an announcer extolling the product's virtues. The information conveyed was also highlighted by the use of graphics (lettering) superimposed on the images. The affective commercial contained only the basic information about the product and depicted a montage of women with beautiful hair. The experimental commercials were embedded within the chosen programs along with three other 30 s filler commercials--one for a movie, one a public service announcement (PSA), and one a promotional commercial for an upcoming television program. The commercial breaks for both programs occurred at 6 min 30 s into the program. The order of the commercials was the experimental advertisment, the movie advertisement, the PSA, and the promotional advertisement. The total running time for both programs, includin g the embedded commercials, was 15 min.

Participants

The participants for this study were recruited from an undergraduate population at a university. The sample was made up of 103 students (41 men and 62 women) between the ages of 18 and 21 (M = 18.80, SD = .76). They were asked to volunteer during class, and no credit was given for participation.

Procedure

Near equal numbers of participants were randomly assigned to each treatment group (cognitive commercials/cognitive program, n = 27; affective commercials/affective program, n = 26; cognitive commercials/affective program, n = 25; affective commercials/cognitive program, n = 25). At the start of the experiment, participants were asked to indicate their level of interest in watching a particular type of television program. To induce a moderate level of involvement with the program, the participants were asked to follow specific instructions. The participants in the cognitive involvement condition were instructed to watch the television program and come to a basic understanding of the issue being presented, and the participants in the affective involvement

condition were instructed to watch the television program and follow the storyline by identifying with the main character and trying to feel the emotions. Immediately after watching the program, the participants were asked to recall the commercials embedded i n the program: The students were asked to write down on a sheet of paper the brand names of as many of the advertised products in the program as they could remember. After this, to instigate cued recall, they were provided with the product category and were asked to write down the brand names of the advertised products. Care was taken to ensure that answers from free recall were collected before the participants were given the materials for cued recall. Following this, to measure their involvement with the program and commercials, the participants were asked to respond to semantic differential scales related to how they perceived the program and commercials.

Results

To test the hypotheses, analyses for the dependent variables were performed to determine the effects of program involvement type and commercial involvement type. For the impact variables (free recall, cued recall) chi-square tests of association were performed to examine the association between program involvement type and commercial involvement type. The criterion for significance was set at $p = .05$.

Dependent Measures

Free recall. There was a significant interaction effect between program type and commercial type influencing the recall scores for the cognitive commercial and for the affective commercial. As expected, the results showed that free recall was significantly higher for participants viewing the cognitive commercial in the cognitive program (70.4%) compared with free recall of participants viewing the cognitive commercial in the affective program (20%), $[[chi].sup.2]$ (1, N = 52) = 11.30, p [less than] .001. Similarly, the free recall was significantly higher for participants viewing the affective commercial in the affective program (73%) compared with free recall of participants viewing the affective commercial in the cognitive program (36%), $[[chi].sup.2]$ (1, N= 51) = 7.65, p [less than] .01.

Cued recall. There was a significant interaction effect of program type and commercial type that influenced cued recall for the cognitive commercial and for the affective commercial. As expected, cued recall was significantly higher for participants viewing the cognitive commercial in the cognitive program (74%) than for the participants viewing the cognitive commercial in the affective program (28%), $[[chi].sup.2]$ (1, N= 52) = 9.27, p [less than] .01. Similarly, the cued recall was significantly higher for participants viewing the affective commercial in the affective program (80.7%) than for participants viewing the affective commercial in the cognitive program (40%), $[[chi].sup.2]$(1, N= 51) = 9.99, p [less than] .01.

Tests for Randomization

Tests for randomization of participants between the cognitive and affective groups consisted of measures in the degree of interest in television viewing. The mean differences across the group were not significant, $F(1, 101) = 1.16$, p [less than] .319, with an overall mean value of 3.86. The groups' overall expressed interest in television viewing was slightly below the neutral level of 4.

Manipulation Check

Program involvement level. The level of involvement with the programs was measured and analyzed to be certain that it was at the moderate level. The items, important/unimportant, exciting/unexciting, means a lot to me/means nothing to me, uninteresting/interesting, irrelevant/relevant, matters to me/doesn't matter to me, on the involvement scale are traditional measures of the level of involvement (Laurent & Kapferer, 1985a, 1985b; McQuarrie & Munson, 1987; Zaichkowsky, 1985, 1987). Because these items were measuring the same concept (level of involvement), they were combined (Cronbach's [alpha] = .94) to provide one single score. This study used only the moderate level of involvement, which was created by appropriate instructions. For this manipulation to be successful, the means of both groups (cognitive involvement and affective involvement) needed to fall within the range of the medium point (3 and 5 on a scale of 7) without a significant difference between the two conditions. The mean involvement level s cores for the cognitive program and affective program were 3.47 and 3.50, respectively, and the difference between the conditions was not significant, $t(101) = 0.29$, p [less than] .76. Thus, the manipulation was deemed to be successful.

Program involvement type. A manipulation check was conducted for the type of program involvement. The results showed that the manipulation was successful. The items, significant/insignificant, informative/uninformative aesthetic/not aesthetic, superficial/vital, appealing/unappealing, made me think/did not make me think, and exciting/unexciting on the involvement scale measured the involvement type. The items informative/uninformative, significant/insignificant, and made me think/did not make me think measure the construct of cognitive involvement (Laurent & Kapferer, 1985a, 1985b; McQuarrie & Munson, 1987) and, for the cognitive manipulation to be successful, the scores on the items would be significantly higher for the cognitive condition than for the affective condition. Because these items were measuring the same concept (Cronbach's [alpha] = .91), they were combined to provide one single score. The mean cognitive involvement score for the cognitive group (M = 6.03) was higher than the mean cognitive invo lvement score for the affective group (M= 4.85), and the difference was significant, $t(101) = 4.52$, p [less than] .0001. The items aesthetic/not aesthetic, appealing/not appealing, and superficial/vital measure the affective construct of involvement type (Laurent & Kapferer, 1985a, 1985b; McQuarrie & Munson, 1987), and for the affective manipulation to be successful, the scores on these items should be significantly higher for the affective condition than for the

cognitive condition. Furthermore, scores on the item exciting/unexciting would also be higher for the affective group than for the cognitive group (Zaichkowsky, 1987). The four items were combined to provide a single score, but the item superficial/vital was found to have poor correlation with the other three items (r = .1, .14, and .22) and hence was dropped. The analysis was done with the other three items (Cronbach's [alpha] = .81), and the results showed a significantly higher score for the affective condition (M = 5.27) compared with the cogniti ve condition (M = 4.73), t(l01) = 2.14, p [less than].034.

Discussion and Conclusions

Contextual effects studies have become an important part of media research; substantial work has been done in this area, yet prior research examining the effects of program context on the effectiveness of the commercials has yielded a limited understanding of the phenomenon. This study examined the contextual effects, studying some newer moderating variables--the type and level of viewer involvement with TV programs and commercials.

The results of this study show that the congruence between the involvement types of a television program and an advertisement influences the effectiveness of the commercial's impact on memory. The influence of the congruence was significant for the two impact measures--free recall and cued recall. Free recall and cued recall were significantly higher for the cognitively involving commercial in the cognitively involving program context than in the affectively involving program context and for the affectively involving commercial in the affectively involving program context than in the cognitively involving program context. Results of this study support Park and Mittal's (1985) view of the motives underlying the selection of a television program: If the motive is cognitive, one watches a television program to gain knowledge about a particular subject matter, to examine one's perspective relative to others, and to entertain one's intellectual curiosity. When the motive is affective, the reasons for watching a te levision program are essentially aesthetic in nature and are based on the appreciation of the program for its own sake apart from any utilitarian function it may perform. Thus, the results also corroborate the theoretical conception of the congruency effect wherein one can expect a higher degree of recall if the content of the commercial message is in congruence with the program. The results also support some earlier views, such as McClung, Park, and Sauer's (1985) contention that there may be an interaction between the viewer's level and type of involvement with the program and commercial that might influence the recall of the commercial.

Several important implications for practitioners in advertising and marketing are evident from the results of this study. When millions of dollars are spent on advertising, especially television advertising, at issue is the question of proper placement of commercials within a specific program to maximize the commercial's effectiveness. This issue has to be addressed by examining the information processing mode between the program and commercial, and this relates to the

level and type of viewer involvement with the program and commercial. Advertisers have to look beyond program ratings and demographics, right down to the aspect of program and commercial processing. Keeping this in mind, advertisers can position their specific commercials within specific programs for greater effectiveness of the commercials.

Although limitations of the study do exist, the results enhance understanding of the effect of program context on commercials and provide a way to delineate the effectiveness of a commercial embedded in a specific program. For fuller understanding of the effect of the congruence, a variety of products need to be studied in a more naturalistic setting wherein viewers are subjected to multiple exposures of a particular commercial. Despite the study's limitations, the findings should be useful in further theoretical research leading to practical implications in the area of viewers' involvement levels and involvement types with television programs and commercials.

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